First Year Report

Influence of Cultural Cognition, Social Aspect of Culture, and Personality on Trust

Annotation

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14. ABSTRACT
The grantee evaluated the relative strength of Mayer?s trustworthiness indicators in both a collectivistic and individualistic culture. The research proposed will examine influences of analytic-holistic thinking and power distance on trust, as characterized by the trustworthiness indicators, and the influence of personality variables on the relationship between cognitive load and trust.

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A-1_Stolle, D., Soroka, S., & Johnston, R. (2008). When does diversity erode trust? Neighborhood diversity, interpersonal trust and the mediating effect of social interactions. *Political Studies, 56,* 57–75.

Direct bridging contacts with others build trust that go beyond different groups. People who shared similar characteristics like race create in-group bias, trust, cooperation and affection developed easily among these in-group members. At the same time, this shared identity also facilitates outgroup-hostility with increased prejudices when there is less contact with people with different characteristics.

This paper examines the relationships between diverse and trust, whether the effects of diversity are mediated by social interactions/ social experiences. A model of interpersonal trust was replicated in the US and Canada. Minority trust less than majority respondents in both countries but are not much influenced by the diversity in contexts, perhaps other factors which were not included in the study as speculated by the authors. Trust increases with age and education as expected.

Mediating Effects of Social Interactions on Trust and diversity:

Interactions with neighbours were included. Diversity measures of neighbourhood are more predictive than proximity measure. People with diverse neighbours and frequent interactions are more trusting. People have different sensitivity to the context such as those who interact regularly with diverse neighbours were less influenced by other races.

A-2_ Segall, M., Dasen, P., Berry, J., & Poortinga, Y. (1999). Human behavior in global perspective: An introduction to cross-cultural psychology. Boston, MA: Allyn and Bacon.

The first chapter presents several definitions of culture that have been used in cross-cultural research.

One chapter focuses on cultural influences on perceptual and micro- cognitive processes. The cognitive processes of interest include categorization, memory, and problem solving.

Another chapter entitled "everyday cognition" focuses mainly on "school skills," which we have determined we will not focus on.

A-3_Triandis, H. (1972). The Analysis of Subjective Culture. New York: Wiley Interscience.

This book 1) defines subjective culture and its elements; 2) suggests appropriate approaches for the measurement of the elements of subjective culture; 3) argues for the importance of an analysis of subjective culture for the prediction of behavior.

Definition

(1) Subjective culture refers to a cultural group's characteristic way of perceiving its social environment. More specifically, it refers to the variables that are attributes of the cognitive structures of groups of people.
Triandis says that the concept of subjective culture is the same as "mazeway" used by Wallace, 1962a), "behavioral" (Hallowell, 1955), "worldview" (Redfield, 1953),

"cognitive map" (Tolman, 1948) and "life space" (Lewin, 1951).

(2) 'cultural group' is one whose members speak the same dialect, share major activities, or have a common ideology.

Elements included in their definition of subjective culture:

Associations
attitudes
Beliefs
Concepts (categorizations)
Evaluations
Expectations
Memories
Opinions
percepts
Role perceptions
Stereotypes
Values

Analyzing subjective culture

To analyze subjective culture, they place people who belong to specific cultural groups in similar situations, present them with many kinds of stimuli, and observe their responses. When the responses constitute similar patterns, they infer similarities in subjective culture. Further, when the similar patterns obtained in one culture differ from the similar patterns obtained in another, they infer the existence of differences in subjective culture.

Conceptual map of subjective culture:

Value orientations

↑

Values

↑

Major cognitive structures (attitudes)

↑

Elemental cognitive structures

↑ (implications — Norms — tasks

value ↑ antecedent-consequent relations — Roles — reinforcement

↑ beliefs, stereotypes — ideals — reinforcement

expectations)

Concepts – compound meaning categories (e.g., words)

↑

Meaning categories – elemental cognitive categories with affect, meaning (e.g., morphemes)

↑

Elemental categories (visual, auditory, behavioral, etc. (e.g., phonemes)

↑

Discriminable stimuli (visual, auditory, behavioral, temporal, etc.)

Antecedents of subjective culture:

Distal
Physical environment/resources
Historical events

Medial
Economic activities
Social organization political organization

Proximal
Occupations
Social situations
Language
Religion
Place of residence
Stimuli
Feedback from one's own behavior

A-4_Jones, M. L. (2007). Hofstede – Culturally questionable? Published in *Oxford Business & Economics Conference, June 24 – 26, UK,*

Definitions:

A collective programming of the mid which distinguished one group from another (Hofstede, 1980)

Mental programming… patterns of thinking and feeling and potential acting (Hofstede, 1991)

Culture is acquired slowly in a society which includes (1) learning values, (2) partaking of rituals, (3) modelling against heroes, and (4) understanding symbols.

Hofstede's Study:

Hofstede conducted with over 60,000 IBM staff in over 50 countries in 1967 – 1978 and identified 4 bipolar dimensions, which are PD, I-C, Uncertainty Avoidance (U-A) and Masculinity-Feminity (M-F). Subsequent study by Hofstede and Bond (1984; 1988) suggested the 5th dimension which is Confusion Dynamism or Long/Short Term Orientation.

1) PD – degree of unequal distribution of power and wealth is tolerated, which is determined by workplace hierarchy and social strata e.g. Malaysia was low on Hofstede's scale indicating huge distances between ranks while Israel is an egalitarian country.
2) IC – indicating degree of social/ community integration where people prefer to work alone or in groups. Americans prefer individual achievement wile Guatemalan works well in groups and look at group achievement.
3) MF – degree of masculinity traits like assertiveness, authority are preferred to female traits like relationships and welfare. Japan showed the highest on masculinity rating while Sweden and Norway had the lowest score.
4) UA – the degree to which one is threatened by unstructured or uncertain events, and if they have control over the future. Greece requires structures in work and to make

decisions while Swedes don't.

Arguments against:

- Survey is not appropriate given that the variables are culturally sensitive and subjective while Hofstede clarifies that survey is just one of the few methods used.
- Hofstede's study assumes the population is homogenous but in fact they are groups of ethnic units. Hofstede also has the tendency to ignore the variations within community.
- Hofstede pointed that the only way to identify and measure cultural differences are by national identities yet it was found that culture is across national lines instead.
- The outcomes may be influenced by the timing of the survey especially for MF and UA. Europe was haunted by WWII while there was communist in Asia, Africa and Europe.
- Hofstede used only one company which cannot represent the entire cultural system. Hofstede clarifies that using single multinational employer in fact eliminate differences of corporate policy and management practices.
- Hofstede's study is out-dated while Hofstede indicated that cultural outcomes are based on centuries of indoctrination and will not change overnight.
- 4/5 dimensions are too little to be representative of cultural differences and Hofstede agrees with this.
- Occasionally some items are used on more than one scale and increase the chances of sample error.

Supporting Hofstede:

- Hofstede's work provided advices for many businesses that were just expanding and experiencing difficulties, hence his work are considered pioneer. This work is based on systematic data collection. Later on, many replications of study actually confirmed Hofstede's prediction.

The author discussed some problems which are faced in cross-cultural research such as the definitions problems for "culture", methodological issues such as at one particular time frame, and researchers' background which are usually homogeneous and inadequate attention to equivalence such as functional, conceptual, and instrument equivalence.

Australia vs. Indonesia

- Relatively close geographically yet huge cultural gaps.
- There are significant differences.
- As expected, Indonesian have higher PD, with more formal hierarchy and centralised management. Indonesians are highly collective while Australians are individualistic. Both countries are moderate on MF with Australian have slight bias towards Masculinity. Both are similar on UA.

A-5_Klein, H. A., & Kuperman, G. (2008). Through an Arab cultural lens, *Military Reviews,* 100–105.

Robert H. Scales (retired major general) defines military victory as capturing psych-cultural and not geographical ground. US military are becoming more sensitive to customs, social organisation, leadership, and religion and internationally, America has to understand from the Arab's perspectives. US Air Force studied the Arab and identified differences that may cost misunderstanding and hostility during interactions with Arab while being aware of

these differences can improve appreciation for Arab thinking, improve negotiation, coordination, and planning. It was being cautioned that the region is not homogenous, hence their thinking may differs.

Personal identity:

- Independent vs. Interdependent: westerners believe they have unique traits, values and attend to own needs and interest while Arabs identify themselves in relation to family and tribe. Arabs often perceived lack of caring and sense of isolation in Westerners. Interdependence may constrain one's initiative.
- Honor and the concept of Self: one's sense of honor permeates Arab's self-concept and motivation, protect kin at the best, and determine decision making (marrying high status man, big house, being hospitality to guest, consider labor shameful).
- Fatalism vs. mastery: believe one's health, wealth, and luck are inevitable and not determined by human's actions. Westerners believe they can master their life with actions instead. Thus, westerners may see Arab as short-sighted or lazy while Arabs may see westerners as arrogant or stupid.

Social behaviours:

- Achievement vs. Relationships: Westerners are achievement oriented while Arabs focus more on relationships. Decisiveness may be valued by westerners but seems rude to Arabs. Decision values increase with time spent on it.
- Concept of time: westerners view time as valuable and should be used wisely while Arabs view time as flexible and comfortable with multi-tasking. Work and personal time are not clear cut for Arabs. Westerners see these as unprofessional while Arabs see schedules as unproductive.
- Power distance: Arab accepts high power distance, with inequality between subordinate and bosses while westerners are egalitarian in their work and social, with leaders are chosen based on merit. Generally, power comes from family and tribal membership, increases with education, professionalism, and age.

Forms of Reasoning:

- Direct versus contextual language: Direct communications are valued by westerners, see it as honesty while the Arabs claimed that meaning of communication are judged by one's words, status and non-verbal cues. Arabs may see public directness as rude and threatening such as "you are fired!" Arabs also expect words and actions to correspond, and it is impolite to reject a request directly. While westerners are insensitive to the Arab's reasoning in language, they see Arabs as dishonest.
- Analytic vs. Holistic thinking: Westerners are usually analytic, use logic to explain events, and link causes to attributes. Arabs are holistic, consider other factors in the surroundings and are sensitive to any secondary attributes and relationships. Arabs think westerners are naïve to ignore other secondary attributes while the westerners are frustrated when Arabs include extraneous details.
- Concrete vs. Hypothetical reasoning: Arabs rely on concrete reasoning, they plan and make decisions based on past experience. Westerners reason hypothetically, use mental simulations to generate plans, envision outcomes. Arabs uses experiences from past cases when face with challenges while westerners often speculate possible consequences.

A-6_Miller, J. G. (2002). Bringing culture to basic psychological theory–beyond individualism and collectivism: Comment on Oyserman et al. (2002), *Psychological Bulletin, 128*, 97–109.

Research on Individualism and Collectivism:

- The core idea of individualism is being independent of one another while collectivism is being view as binding and mutually obligating individuals in a group.
- The need to introduce other distinctions such as tightness vs. looseness, cultural complexity, vertical vs. horizontal relationship, and active vs. passive orientation.
- One of the goals of cultural researches is to develop a universal theory to predict behaviour on a worldwide scale, with all the cultural elements as parameters to explain behaviour.
- One of the problems in research so far is it involved only 2 culture comparisons and slightly overrepresentation of East Asian group.
- Oyserman et al. (2002) concluded that "cultural differences are likely to be found in which constructs are salient for particular populations on the basis of their being differentially primed in everyday social contexts in different cultural settings and thus differentially available or accessible for cognitive processing".

Cultural Research:

- There are distinctions between cultural and cross-cultural psychology, which reflect contrasting views in regards to the role of culture in psychological theory and goals of psychologically based research.
- Cross cultural psychology is concerned with generality of existing psychological theories in various cultural contexts and develops a universal model to predict behaviour globally.
- Culture is either independent (impact the development) or dependent (on the display of psychological processes)
- Cultural psychology is interdisciplinary tradition of research that is seen in social-psychological, developmental, psychological-anthropological and sociolinguistic.
- Concern with identifying underlying cultural of psychological processes and identifying culturally based variation in psychological theory.
- Main goal in cultural psychology research is identifying new constructs and theories that capture aspects of psychological functioning not included in existing psychological approaches.
- New insights that emerged in work of culture and psychology revolve around (1) contextually mediated nature of cultural influences on psychological functioning (2) importance of social practices in underlying cultural variation in behavioural outcomes (3) complexity of sociocultural processes. Global cultural differences that are observed may be contextually linked. Cross-cultural behaviour differences that have been attributed to the individual personality should be reflective of one's participation in contrasting behaviour settings as well. It is required to highlight the need to include power dynamics and daily social practices in order to understand culture.

BI-1_Basabe, N., & Ros, M. (2005). Cultural dimensions and social apillary correlates: Individualism-collectivism and power distance. *Revue Internationale De Psychologie Sociale, 18*, 189–225.

- Core beliefs of individualistic persons are personal independence and uniqueness such as competition, personal achievement and internal attributes while core beliefs of collectivist is "duty and obligation towards group".
- In high PD group, competitiveness, work centrality and internality are reinforced as materialist values are important.
- Hofstede's Power Distance: "extent to which national cultures expect and accept that power is distributed unequally in society".

The study examines convergent validity of cultural dimensions: Hofstede's Individualism and PD, Schwartz's Conversatism, Hierarchy, Affective and Intellectual Autonomy; and Egalitarian Commitment (Schwartz and Trompenaars), Trompenaars' Utalitarian Involvement and Inglehart's Postmaterialism. Results showed that Hofstede's Individualism is related to autonomy, independent and emphasis on equality to others.

<u>Individualism-Collectivism and PD: Macrosocial correlates , Economic and social development, Urbanization, Density:</u>

- It's discussed that economic development, low population density, urbanization increases resources and facilitate personal autonomy. Economic development promotes secular and self-expression values (countries high in PD and Hierarchy have low economic development).
- Urbanization and modernization reinforces individualism but this was not supported in the present study. Individualism did not appear to have relationship with density and there was no relationship between PD and density as well.
- Economic development in a society reinforces individualism. Urbanization is related to individualistic values but related to social development instead.
- Smaller family size, human rights, corruption and ethnic diversity had influence on Individualism and PD.

BI-2_Brewer, M. B., & Chen, Y-R. (2007). Where (who) are collectives in collectivism? Toward conceptual clarification of individualism and collectivism. *Psychological Review, 114*, 133–151.

The authors mentioned some distinctions that have to be made:

- whether I/C should be conceptualised within a culture or person
- whether the other distinction is the focus on this issue should be on the self or the broader values and believe systems.
- One of the criticisms is that these constructs are assessed in a broad and disperse ways. There are efforts to refine the measurement constructs such as measuring specific components (sacrificing personal interests for group) and factor-analyzed scales have been generated.
- On the other hand, a meta-analysis by Schimmack et al (2005) supported individualism as a valid dimension in cultural differences but researchers may have to look into the conceptualization of collectivism.

Definition:

Etzioni (1968) "collectives consist of individuals who are bound together through a common set of values and norms". Collective is defined as "a macroscopic unit that has a potential capacity to at by drawing on a set of macroscopic normative bonds which tie members of a stratification category".

Triandis (1972) "culture is a system of shared meanings and understandings, together with a set of practices that enact and reinforce the shared worldviews".

Where are Collectives in Collectivism measures?

Most discussions of in-groups involve interpersonal relationships such as family/friends/colleagues but not large social groups. Ratio of relational items (orientations towards personal others or small interpersonal networks) to group/collectivistic items is 2.6:1, indicating that large social groups are not the focus of collectivism study and also implies that differences/similarities in people's relational but not collective orientation that have been researched.

Individualists are not less collectivistic

From earlier studies it was found that Americans were no less collectivistic than Asians depending on the content such as that Americans score higher on "belonging to in-group, seeking advice" but not group harmony or goals. Americans also favors their in-groups' products and make group-serving attributions in success.

Trichotomization (Brewer & Gardner, 1996).

- There are 3 different levels of social self: individual, relational (connections and role relationships with others) and collective (properties that are shared in groups; does not require interpersonal interaction but relies on shared representation of the group).

Relational vs. group collectivism

From the authors' view, "differences between cultures is how social identification are channelled to regulate social cooperation and achieve a balance between expression of individuality and social conformity"

Yuki (2003) suggested that predominant characteristics of group cognition differ with Western individualistic emphasize on categorical distinction between in-groups and out-groups while Asians perceived groups based on relationships.

The distinctions between relational and collectivism allows the recognition of individualists and collectivists as group-oriented individuals and thus will show in-group trust or associated behaviours. Yuki et al. (2005) found that in-group trusts are observed in both Americans and Japanese while out-group trusts are only observed in Americans.

It is suggested to explicitly acknowledge relational and group collectivism as they serve different bases across cultures.

Elements of collectivism

Oyseman et al (2007) analysed 27 I-C scales and identified 7 individualism components and 8 collectivism components which cause direct comparisons to be impossible.

Independence	Relatedness
Individual goal striving	Group belonging
Competition	Duty
Uniqueness	Harmony
Self-privacy	Seeking advice from others

Self-knowledge	Contextualization
Direct communication	Hierarchy
	Preference for group work

I-C dimensions can be grouped into 3 basic dimensions: self-representations (shared understanding of how self is best represented, as individual, collective or relational), agency beliefs (understanding of what makes things happen), and values (importance placed on rights, obligations, rights and responsibilities)

It is argued that distinction has to be made between relational and group collectivism and the proposed model differentiated self-representations, agency beliefs and values as different manifestations of individualism, relational and group collectivism. Due to global economic development, societies are moving towards greater individualism, and change is being adopted gradually.

BI-3_Wu-M-Y. (2006). Hofstede's cultural dimensions 30 years later: A study of Taiwan and the United States. *Intercultural Communication Studies, 15*, 33–42.

Hofstede's (1984) identified 4 work-related cultural dimensions in different countries, which are power distance, uncertainty avoidance, individualism and masculinity. PD is the power inequality between superiors and subordinates, which are usually displayed in organizational hierarchy.

Previous studies argued that changes in society such as economic growth, education and democracy could affect work-related cultural dimensions.

A pilot study was conducted to investigate its psychometric properties of measurement for Hofstede's five cultural dimensions among Taiwanese and Americans administrative employees. There are criticisms regarding Hofstede's measures which indicated that the scale taps PD at a national level but not individual differences. Hofstede's cultural-value items were replaced by Dorfman and Howell's (1988) new measure of Hofstede's dimensions. According to Hofstede's study (1984), PD in Taiwan was medium to high while the opposite is true for USA. But in this study, PD is medium in Taiwan while PD is low to medium in the USA. Result of this study also indicated that cultural values do change with time and factors changed like political, societal, and economic environments.

BI-4_Oyserman, D. (2006). High power, low power, and equality: Culture beyond individualism and collectivism. 352–357.

Research on Individualism evolved in three phases: research assumed single scale with I and C both at one end; research then assumed both I and C are orthogonal factors, non-overlapping, hence society and individuals are either I or C; lastly research see I and C as dynamic, both I and C are universally available but need to be trigger to have effect on the society.

Hofstede (1980) once suggested that once I is operationalized as high or low, there is no need to discuss C separately. This notion is later being proved inaccurate by Oyserman et al. (2002) meta-analysis which showed I-C are in fact orthogonal factors, with both can have effect on society, depending on the situational factors that make it salient within individual or society.

Hofstede identified PD as the first cultural factor, with I being the second. I emphasize human's awareness of unequal distribution of valued characteristics while PD highlights the extent of these differences in relation to unequal power, wealth, or prestige. PD

indicates the perceptions and responses of various levels PD system and hence provides sense of fairness. Hofstede (1980) defined PD as "the extent to which a society accepts and views as inevitable or functional human inequality in power, wealth and prestige.

It is recommended to include "power differential (vertical)" or "equality (horizontal)" in the research of power. It is said that investigating power and equality within I-C framework can tap on to some new exploration. C is correlated with power differential.

Power-dependence and equality relate to tendency to use global vs. local processing styles. Global processing style is prerogative of those who have power while local processing is used by those with equal or lower power.

BI-5_Naumov, A. I., & Puffer, S. M. (2000). Measuring Russian culture using Hofstede's dimensions. *Applied Psychology: An international review, 49,* 709–718.

This paper aimed to determine the application of Hofstede's 5 cultural dimensions among the Russian. Dimensions, according to Hofstede is "the ability to define how a culture's patterns of behaviour solve a given problem and how this behaviour is compared with that of other cultures".

Research findings by Hofstede for the USA, China, Germany, France and Japan were used as comparison. Russian respondents had relatively high uncertainty avoidance and paternalism; scored moderately for Individualism, PD and masculinity. Economy, social and political reforms were said to play a role to the cultural changes among the Russian society.

BI-6_Francesco, A. M., & Chen, Z-X. "Cross-cultural" differences within a single culture: Power distance as a moderator of the participation-outcome relationships in the People's Republic of China. *BRC Papers on Cross-Cultural Management.*

Previous studies have showed that participation may have different effects on work outcomes due to cultural differences, particularly PD. In high PD cultures, low participation did not affect organizational commitment while the use of participation in this culture may in fact lead to the impression of incompetency in management instead.

This study was conducted in China and aimed to explore moderating influences of PD values on participation and outcomes like organizational commitment, JS, intention to stay and JP. To measure PD, 6 items from power differential scale (Earley & Erez, 1997) were obtained. Originally, it contained 8 items such as "in work-related matters, managers have a right to expect obedience from their subordinates" and "employees should not express disagreements with their managers". On more items were added in the present study "employees should highly respect their supervisors". The Cronbach alpha for this scale was .74. It was found that the influence of participation at work on the outcomes variables was moderated by PD. PD significantly correlated with OC, JS, and intention to stay and this indicated that cultural values may influence one's attitudinal outcomes more than performance.

BI-7_Bruins, J. J., & Wilke, H. A. M. (1993). Upward power tendencies in a hierarchy: Power distance theory versus bureaucratic rule. *European Journal of Social Psychology, 23,* 239–254.

Power Distance Theory (Mulder, 1958) proposed that power gives satisfaction and desire for power resulted from this satisfaction lead to downward or upward power tendency. Power Distance Reduction tendency (PDR) is the tendency to reduce difference in power between two parties and the strength of it is determined by the PD. Another theoretical notion is the bureaucratic rule (Ng, 1977) which states "a vacant position at the top will be filled by the next most senior person) thus indicating those that are immediately below the top position

tend to have stronger upward tendency.

Study found that at high PD, desire for power was stronger which challenged the validity of PD Theory. It was found that upward tendencies of individuals who are immediately below the top position were stronger than those who were in the lower positions.

BI-8_Poppe, M. (2003). Preferences for changing power positions and power distances: A social value orientations approach. *European Journal of Social Psychology, 33,* 177–193.

Power Distance Theory:

Mulder (1977) defined exercise of power as "determining or directing the behaviour of other to some extent (and more than in the reverse direction)". In Mulder's view, having power but not the lack of it triggers the desire for more instead. Power distance is related to the tendency to increase or decrease the power distances and can be approached from two perspectives, one's from a person who has more power while the other is from someone with less power.

Social Comparison Theory:

People evaluate their abilities and opinions to have positive or correct opinions and appraisals of their abilities. The larger the differences between two persons' ability, the lower the tendency to compare between both (Festinger, 1954). One's tendency to move towards or away from others is determined by two pressures, (1) evaluation drive lead to uniformity pressure and (2) upwards drives/ pressure. In Rijsman's (1974, 1983) social comparison model, comparison is strong if he or she is equal to the comparison other on the comparison dimension. If the difference between both is huge, they will stop comparing.

The Study:

75 students participated in the experiment. They were asked to put themselves in one of the three positions which had different level of influences on one another.

Hypo 1: People strive to increase power (PD theory)
Hypo2: The more power one has, the more he or she strive to keep or increase the distance (PD theory)
Hypo 3: The greater the distances, the stronger one strives to increase it (PD theory, social comparison theory)
Hypo4: One strives to reduce PD between themselves and the more powerful one (PD and social comparison theory)
Hypo5: The smaller the distance from the more powerful one, the stronger the tendency to reduce it (PD and social comparison theory)

Results showed that people preferred to increase their power but tendency to increase is less when one had more power, inconsistent with Mulder's power addiction principle. Power distance between H (high) & M (medium) was increased. In situation with larger PD, those with more power reduced the power, consistent with social comparison theory but not PD theory. Those in L had equally strong tendency as M to decrease PD to H is in contrast with both theories. These findings showed that social comparison theory provide better support in predicting people's striving for power as all findings either refuted PD theory or supported social comparison theory. Those who are in a higher power position were less motivated to achieve equity while those who were in the lower power position were more motivated to, but the people with higher power in the present study preferred not at all to restore equity.

BI-9_Begley, T. M., Lee, C., Fang, Y., & Li, J. (2002). Power distance as a moderator of the relationship between justice and employee outcomes in a sample of Chinese employees. *Journal of Managerial Psychology, 17*, 692–711.

PD is the tendency to view gap between both parties (authority and subordinate) as substantial but acceptable and legitimate (Hofstede, 1980). Employees in high PD culture are submissive, prefer autocratic superiors, and do not expect to make decisions while people in low PD culture expect superiors to discuss with them on matters and thus have closer relationships with superiors. PD hence predicts one's attitudes towards authority (Tyler et al., 1995). Those in high PD culture have relatively modest expectations, therefore less concerns or issues with distributive fairness.

This study is conducted in the Chinese context given that they have Confucian heritage which emphasizes on respect for people according to hierarchical and roles which reinforces subordinates to obey to superior.

Methodology:
*Power Distance (Dorfman & Howell, 1988) consists of 6-item to measure degree of inequality between manager and employee which is acceptable. Sample items are such as "Employees should not disagree with management decisions"; "managers should seldom ask for the opinion of employees". This scales uses 7-point response scale with averagely high reliability and validity.
**other variables are such as procedural justice, job satisfaction, affective trust, distributive justice, intention to quit, organizational citizenship behaviour, and negative affectivity.

Findings:
- PD moderated relationships between justice perceptions with employee outcomes.
- Average to low PD was reported in the present study which opposed to the general assumption of China as a society which is high in PD.

BI-10_Wahab, E. (2010, June). *The moderating role of power distance on the relationship between perceived organizational support and organizational commitment.* Paper presented at the 5th National Human Resource Management Conference, Kuala Terengganu, Malaysia.

This study investigated the moderating effects of PD on perceived organizational support (POS) and organizational commitment (OC) in the Malaysian context. In terms of POS and OC, leader-subordinate relationships describe how PD moderates while from the relational model perspective, high PD is said to stop employees from bonding with bosses thus limiting obligation. This suggests that within high PD culture, POS affect one's affective and normative commitment.

Findings suggested POS to be positively related to affective commitment with perceived support given the organization increase employees' sense of belonging and trigger obligation to remain in the organization. Supporting earlier studies, employees in high PD culture displayed low commitment while ingroup collectivism effects were insignificant. PD did not moderate the effect of POS on affective commitment but moderated between POS and normative commitment. This could be explained as high PD culture increase possibility of employees to be more aware of how support is given to them thus make them more obligated to the company.

BI-11_Philips, N. (1994). Managing International Teams. Burr Ridge, IL: Financial Times.

The author talks very briefly about Arab cultures.

She states that there are no schedules in Arab countries. Getting things done depends largely on relationships. Giving a deadline is perceived as pushy and rude. This seems to touch on 2 dimensions – activity orientation (more of a being orientation) and time orientation (more of a polychronic rather than monochronic orientation).

BI-12_Cialdini, R., Wosinka, W., Barrett, D., Butner, J., Gornik-Durose, M. (1999). Compliance with a request in two cultures: The differential influence of social proof and commitment/consistency on collectivists and individualists. Personality and Social Psychology Bulletin, 25(10), 1242-1253.

U. S and Poland students (countries that differ in individualism/ collectivism) indicated their willingness to comply with a request to participate in a marketing survey without pay. One half of the subjects were asked to participate after considering their own history of compliance with such requests. And half were asked to participate after considering peers' history of compliance. This was used to assess the impact of 2 different social influence principles: commitment/consistency and social proof, respectively, on participants' decisions. The commitment/consistency principle had greater impact on Americans, and the social proof principle had greater impact on the Poles.

BI-13_Shimmack, U., Oishi, S., Diener, E. (2005). Individualism: A valid and important dimension of cultural differences between nations. *Personality and Social Psychology Review, 9*, 17–31.

There are 3 approaches in studying I-C, namely (1) applying Hofstede-quantitative measure of I-C (2) measuring individualism-develop new measures of I-C. Both approaches were found to be lack of convergent validity, probably due to the Hofstede's outdated scores (1968-1972 vs. 1990s), cultural changes, different samples, low content validity, and differences in statistical analysis of cross-cultural data.

Polarity of Individualism and Collectivism, Validation

- Bipolar view assumes I and C are inversely related.
- Validity of measurements is importance for the interpretation of cultural differences.

Discussions:

- Individualism fails to show convergent validity across paradigms.
- Hofstede's I-C dimensions failed to show convergent validity with new measures of I and C.
- Individualism as an explanatory construct for cross-cultural comparisons has been questioned due to simple measurement issues.
- Those in individualistic cultures are more influenced by internal standards than group pressures.
- Individualism is a stronger emphasis on independence and internal experiences in making judgments and decisions.
- I-C scales are likely to be influenced by response styles.
- Vertical individualism relate to importance of status and hierarchies
- Collectivism is not the opposite of Individualism, but PD is a more likely candidate.
- Horizontal individualism (valuing freedom, independence and individuality), vertical

individualism (PD, status and hierarchical) and vertical collectivism (religious and conservative) reflect meaningful cultural differences between nations. Horizontal collectivism is less clear in this.

- Individualism is an important and valid dimension of cross-cultural differences.

BI-14_Taras, V., Kirkman, B. L., & Steel, P. (2010). Examining the impact of culture's consequences: A three-decade, multilevel, meta-analytic review of review of Hofstede's cultural value dimensions. *Journal of Applied Psychology, 95*(3), 405–439. DOI: 10.1037/a0018938

-I-C is defined as "the degree to which people in a country prefer to act as individuals rather than as members of groups". Later researches then suggest I and C to be two independent dimensions.
-PD is defined as "the extent to which a society accepts the fact that power in institutions and organizations is distributed unequally.
-uncertainty avoidance is defined as "the extent to which society feels threatened by uncertain and ambiguous situations and tries to avoid these situations by providing greater career stability, establishing more formal rules, not tolerating deviant ideas and behaviours, and believing in absolute truths and the attainment of expertise"
-masculinity-femininity with masculinity being defined as "extent to which the dominant values in society are "masculine" – that is assertiveness, the acquisition of money and things" while femininity is defined as opposite of masculinity, such as preferring "friendly atmosphere, position security, physical conditions and cooperation"
-Michael Harris Bond later developed 5th dimension, Confusion dynamism (long vs. short term orientation)

Research Qs:
-predictive power of cultural values as main effects
  -negligible variation in predictive power at individual level versus substantial variation at higher levels of analysis (national)
  -overall effect sizes increases as the level of analysis increases
  -Hofstede's conceptualization was meant for country level analysis right from the beginning, but with researchers attempting to utilize his concept on lower level analysis (individual) thus commit ecological fallacy
  -effect sizes of cultural values is similar to other popular construct that have been used in social science.
  -culture is generally a comparable or better predictor when comparison is done separately for emotions, attitudes/perceptions, behaviours, and performance
  -personality and GMA may be relatively stronger predictors than cultural values.

-moderators of cultural value main effects (age, gender, employment level, years of education, culturally tight and loose)
-effects of cultural values are stronger for older adults, managers, and employees, men, and those with more years of education.

- ➔ Present results showed I-C had no meaningful predictive power differences compared to other cultural values
- ➔ Amounts of variance explained by cultural values are as much as that explained by individual differences such as the Big Five personality traits, demographic, GMA
- ➔ Cultural values explained relatively low variance in outcomes such as JP, absenteeism and turnover but relatively large for organizational commitment, organizational

citizenship behaviour, organizational identification, team-related attitudes and perceptions.

- ➔ Those in tighter societies would have much less flexibility in the expression of their cultural values and outcomes, thus stronger relationship between cultural values and outcomes in culturally tighter societies
- ➔ It was suggested that managers should have more confidence in cultural values measures when certain emotional responses, beliefs, and attitudes are critical to the position.

BII-1_Norenzayan, A., & Nisbett, R. (2000). Culture and causal cognition. Current Directions in Psychological Science, 9(4), 132-135.

Causal reasoning b/t East Asians and Americans differs markedly.

The fundamental attribution error – the tendency to attribute behavior to internal dispositions – is much harder to demonstrate with Asian populations.

This is not to say that Asians do not use dispositions in causal attribution. When situational cues are not salient, Asians do rely on dispositions and show the fundamental attribution error to the same extent as Westerners. However, East Asians have a stronger tendency to use situational cues to attribute causality.

These differences are linked to different intellectual traditions:

1) Western analytical stance – focus on categorizing objects with respect to its attributes and explaining its behavior using rules about its category membership.

2) Eastern holistic stance – orientation toward the field in which an object is found. Tendency to explain behaviors in terms of its relationship to the field.

Field dependence of East Asians – they have difficulty in separating objects from the context in which they are located.

The historical argument has been that holistic and analytic cognition originated in collectivist and individualist orientations, respectively.

BII-2_Choi, I., Nisbett, R., Norenzayan, A. (1999). Causal Attribution Across Cultures: Variation and Universality. Psychological Bulletin, 125(1), 47-63.

The authors talk about the correspondence bias (aka fundamental attribution error) – the tendency to explain behavior in terms of internal attributes of the target under conditions in which the true cause lies in the situational context. They state that there is growing cross-cultural evidence that East Asians are less likely to show the correspondence bias.

They talk about how lay theory in the West locates the responsibility for behavior primarily in the individual. They say that since the time of Aristotle, the locus of behavior has been seen to lie in the attributes of the person. This has been termed dispositionism. In East Asia, lay theory focuses on the whole context of behavior. This has been termed situationism or contextualism. So, whereas Westerners tend to focus only on the individual, Easterners focus on the social situation in addition to the individual.

They say that the contrast b/t object focus in the West and context focus in the East may underlie <u>different thinking styles</u> that characterize the two cultures: <u>analytic thinking</u> versus <u>holistic thinking</u>.

- Westerners tend to be analytic – they pay attention primarily to the object/person, categorizing it based on its attributes. They attribute causality to the object based on rules about its own attributes. Westerners pay little attention to the field in which the object is embedded.

- East Asians, on the other hand, tend to perceive and reason holistically – they attend to the field in which objects are embedded and attribute causality to interactions b/t the object and the field.

BII-3_Chiu, C., Morris, M., Hong, Y., & Menon, T. (2000). Motivated cultural cognition: The impact of implicit cultural theories on dispositional attribution varies as a function of need for closure. Journal of Personality and Social Psychology, 78(2), 247-259.

The authors argue that cultural does have an impact on cognition. However, they claim that culture's influence on an individual's cognition is not static. Rather it "waxes and wanes."

To support their assertion of a dynamic model of culture and cognition, they merge two lines of research: cross-cultural research on attributional tendencies and research on the need for closure (NFC) motive as having a role in social thinking. The literature on these two is reviewed:

Attribution - As we know, in general, Easterners (as compared to Westerners) assign more weight to contextual factors than to dispositional factors when they explain social events. In addition, Easterners are more likely than North Americans to focus on the group as a causal agent and attribute a social event to the group's dispositions, whereas Westerners are more likely to focus on the individual as a causal agent and attribute a social event to that individual's dispositions.

Need For Closure - is defined as a person's desire to resolve social ambiguity. Subscales of NFC include preference for order, preference for predictability, decisiveness, discomfort with ambiguity, and close-mindedness. Individuals have a chronic level of NFC, but it can also be situationally induced.

[NFC seems similar to Uncertainty avoidance]

The authors argue that researchers often assume that the tendency to make individual (and group) dispositional attributions is a stable characteristics of North Americans and Chinese, respectively. However, according to the authors' process model, the influence of culture on attribution is less constant. Culture's influence on social cognition can be moderated by motivational factors (including NFC).

When making a judgment, people may rely on their implicit cultural theories, or they may consider other alternatives. People with a high NFC tend to have an epistemic need to reach a decision on an ambiguous issue and to stick to that decision without considering other alternatives. These people are more likely to "seize" and then "freeze" on the most accessible cognitive alternative when making a judgment. Because of this tendency, (and because our implicit cultural theories are chronically accessible) the authors contend that individuals with a high need for closure would have a greater tendency to use the premises in their cultural theories to guide their attributions. Those with less of a NFC may consider alternatives other than their implicit cultural theories to guide their attributions.

They Designed two studies in which subjects read scenarios and responded to attribution items.

Study 1**:**

The first one tested the hypothesis that Chinese participants would make stronger

group dispositional attributions than individual dispositional attributions, whereas American participants would make stronger individual dispositional attributions than group dispositional attributions. This was supported. (as a side note, they also found differences between cultures in NFC – Overall, Americans were lower on NFC than the Chinese. However, Americans were more decisive than the Chinese – they tended to prefer a quick and confident one best solution to a problem, whereas the Chinese tended to prefer a dialectical and relatively contextualized approach to problem solving.)

Study 2:

The second study manipulated NFC by imposing time pressures. They hypothesized that the cultural differences in attributions would be especially pronounced when NFC was made salient in the situation. This was supported. When under time pressure, Chinese made stronger group dispositional attributions than did American participants than did American participants, and American participants made stronger individual dispositional attributions than the Chinese. They also hypothesized that when time pressure is low, the cultural differences in attribution would be attenuated. This was also supported. In the low time pressure conditions, the differences were not significant.

The authors discuss how previous research has sought to explain cultural variations in social perception as dispositions that reflect static values or beliefs held by the cultural groups. They argue that the present findings reveal more of a dynamic picture of the culture-cognition relationship. They suggest that cultural theory only guides social thinking when it is activated. One's cultural theories are not his/her only tool for understanding the world. For example, some may develop foreign cultural meaning systems when (if activated) can guide their social perceptions. But, when NFC is high, one's chronically accessible cultural theories are likely to be activated.

BII-4_ Morris, M., & Peng, K. (1994). Culture and Cause. Journal of Personality and Social Psychology, 67, 949-971.

The researchers investigated how American and Chinese individuals explain the actions of murderers. In 1991 there were two similar, highly publicized cases of murder in the US. One of the murderers was a graduate student who had lost an award competition, unsuccessfully appealed that loss, and subsequently failed to get an academic job. He shot and killed his advisor, several other people, and himself. One of the murders was an Irish-American postal worker in Detroit. He had lost his job, failed to appeal the decision, and couldn't find an alternative job. He shot and killed his supervisor, several others, and himself.

The researchers compared the explanations of these murders in the New York Times and in a Chinese language newspaper. All of the articles published about these two crimes were coded for the presence of situational and dispositional attributions.
In general, it was found that the English articles were more likely than the Chinese articles to focus on both murderers' traits, attitudes, and psychological problems. The Chinese articles were more likely to focus on the murderer's interpersonal relationships, on circumstances, and on problems with society.

In a subsequent study, Chinese and American graduate students read accounts of the two murders and rated the extent to which each shooting had been caused by a series of dispositional and situational factors. In general, the American students rated the dispositional explanations as more causally important than the Chinese. The Chinese rated the situational

explanations as more important.

All the studies point to the same conclusion: Westerners tend to view social behavior as driven by internal, stable dispositions such as traits and attitudes. Easterners tend to view social behavior as determined by the individual's interpersonal relations, roles, circumstances, and cultural milieu.

BIII-1_ Markus, H., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. Psychological Review, 98(2), 224-253.

Members of different cultures hold divergent construal of the self, others, and the relationship b/t the two. However, most psychological research has been based on the Western view of the individual – a view of the self that is often assumed to be universal.
They argue that differences between cultures in construal of self, of others, and the relationship b/t the two may be much more powerful than previously thought. Specifically, they argue that the different construal of self have a systematic influence on various aspects of cognition, emotion, and motivation.

There are some <u>universal</u> aspects of self (the inner, private self):

- this includes the self as perceived with respect to the environment (i.e., "I am the person here in this place, engaged in this particular activity")
- this also included the awareness of internal activity, such as dreams, thoughts, and feelings, which are private

There are also <u>divergent</u> aspects of self:

1) Independent self (U.S., Western Europe) –
- separate from others and detached from contexts
- self-contained and autonomous
- comprised of a unique set of internal attributes (e.g., traits, abilities, motives, and values) that determine behavior

2) Interdependent self (Asian, South & Latin American, African):
- Fundamentally connected and less differentiate from others
- Behavior largely determined by what one perceives to be the thoughts, feelings, and actions of others in the relationship
- Self is meaningful only in the context of relationships
- Internal attributes (abilities, opinions, judgments, personality characteristics) are understood as situation specific and don't have a powerful role in regulating one's own behavior.
- Others assigned more importance than in independent cultures
- Involves constant awareness of others and focus on their needs, desires, and goals (reading the other's mind – knowing what he/she is thinking or feeling) (but not *all* others, just "in group" members)

<u>Consequences of an Independent or an Interdependent View of the Self:</u>

I. Consequences for Cognition
- They argue that there are 3 main consequences

1) Those with interdependent selves are more attentive and sensitive to others than those with independent selves.
- This results in greater cognitive elaboration of the other or of the self-in-relation-to-other (i.e., knowing how they're feeling, what they're thinking, how they will act, etc.)

2) In interdependent cultures, the unit of representation of both the self and the other

will include a relatively specific social context. Therefore, knowledge about persons will not be abstract and generalized across contexts.

- Those with interdependent selves are less likely to organize knowledge about the "self in general" or about the "other in general."
- Those with independent selves more likely to make dispositional (trait) attributions; those with interdependent selves more likely to make situational/contextual attributions (Miller, 1984; Shweder & Bourne, 1984)

3) Consideration of the social context and the reactions of others may shape some basic nonsocial cognitive activities such as categorizing and counterfactual thinking.

- The standard of attention and consideration of others is so pervasive in interdependent cultures that it may constrain verbal and ideational fluency. Taking others into account is at odds with individual assertion and attempts at innovation or unique expression. Therefore, interdependent people may have a disadvantage in unstructured creativity tasks (Liu, 1986).
- People with interdependent views of self have difficulty maintaining a counterfactual perspective (Bloom, 1981, 1984). Those with interdependent views may focus on the motivation of the person asking the question and on the nature of their current relationship with that person. Responding to the question in an abstract manner would require ignoring the current social situation and the nature of one's relationship with the other. Those with independent selves, on the other hand, can "easily entertain numerous fanciful possible worlds because there are fewer personal consequences."

II. Consequences for Emotion

- They argue that there are 2 consequences:

1) Differences in the predominant eliciting conditions of emotions

- Ego focused emotions such as anger, frustration, pride (emotions that foster and create independence): more frequently expressed and possibly experienced by independent selves. Other focused emotions such as sympathy, shame, and feelings of interpersonal communion: more often expressed by interdependent selves.

2) Differences in which emotions will be expressed or experienced, and with what intensity and frequency

- Because ego focused emotions are regarded as diagnostic of the independent self, not attending to these emotions would involve denying the "real" self for those with independent selves.
- For those with interdependent selves, the interpersonal context has priority over inner attributes such as private feelings. Therefore, these inner feelings need to be controlled or de-emphasized so that one can fit effectively into the interpersonal context.

III. Consequences for Motivation

- They argue there are 3 consequences

1) Those with interdependent selves should express, and possibly experience, more of the motives that are social or that have the other as referent

2) For those with independent selves, agency will be experienced as an effort to express one's internal needs, rights, and capacities and to withstand undue social pressure. For those with interdependent selves, agency will be experienced as an effort to be receptive to others, to adjust to their needs and demands, and to restrain one's own inner needs or desires. So, motives related to the need to express one's agency will differ b/t independent and interdependent selves.

3) Motives that are linked to the self (e.g. self-enhancement, self-consistency, self-verification, self-affirmation, self-actualization) may assume different forms depending on the nature of the self that is being enhanced, verified, etc.

BIII-2_Kunda, Z. (1999). Social cognition: Making sense of people. Cambridge, MA: MIT Press.

This article discusses the fundamental differences in how Westerners and Easterners view themselves and their social worlds.

She describes a couple of expressions that illustrate differences. In the US "The squeeky wheel gets the grease." But in Japan, "the nail that stands out gets pounded down."

She discusses the fundamental attribution error – people's tendency to exaggerate the extent to which behavior is driven by underlying dispositions and to underestimate the extent to which it is affected by contextual forces. This error, however, is not so "fundamental" outside of Western culture. In Eastern cultures, more attention is paid to the context. She discusses dispositional vs. situational attribution – Easterners are more likely to attribute other peoples' behaviors to their roles and situations rather than to underlying dispositions. Since Americans view the self as characterized by global attributes that transcend situations, they have the tendency to attribute others' behaviors to stable, global attributes.

The author describes the independent self and the interdependent self. (same as Markus & Kitayama, 1991; & Somech, 2000). Although she doesn't use the term "decentering," she does discuss how those with interdependent selves try to figure out what others are thinking and feeling so as to best meet their expectations. In interdependent cultures, members gain an elaborate understanding of each other. Their knowledge of others may be as rich or richer than their self-knowledge.

BIII-3_Eaton, L., & Louw, J. (2000). Culture and self in South Africa: Individualism - collectivism predictions. The Journal of Social Psychology, 140(2), 210-217.

Similar to the introduction in Markus and Kitayam's article. Talks about how people from collectivistic cultures have more interdependent self-concepts than do people from individualistic cultures.

Considered African culture –a collectivistic culture- and Africans' self construal.
The authors don't link this to cognition.

BIII-4_Somech, A. (2000). The independent and the interdependent selves: different meanings in different cultures. International Journal of Intercultural Relations, 24. 161-172.

The author defines the self as "a person's mental representation of his/her own

personality, formed through experience and thought and encoded in memory, reflected and imagined, in the physical and social world" (p. 161-162).

The structural and dynamic dimensions of self are considered universal. However, the relative differentiation b/t the self and others varies across cultures.

Three facets of self:

- The public self – represents cognition concerning others' view of oneself.
- The independent self – represents cognition that involves traits, states, or behaviors of the person; seeks to satisfy internal standards of achievements; represents a person's view of what makes him or her unique.
- The interdependent self – seeks to achieve the goals and fulfil the role established by a reference group.

Measurements

He discusses some measurements that have been developed to assess the independent and interdependent self (e.g., Cross & Markus, 1991; Singelis, 1994.) The measure that is most commonly used is the Twenty Statement Test (TST) (Bochner, 1994; Cousins, 1998, etc.). This method requires subjects to complete 20 statements about themselves, starting with the words "I am…" The responses are categorized into independent or interdependent self.

The author suggests that concepts of self as independent or interdependent vary across individualistic-collectivistic cultures. In individualistic cultures, there is a greater probability of sampling the independent self. In collective cultures there is a greater probability of sampling the interdependent self.

Question

He raises a question: do the independent self and the interdependent self have the same meaning across cultures? That is, does the independent self consist of the same schemata, images, and representations in individualistic cultures as in collective cultures? So, the current study was designed to test the structure of the independent and the interdependent selves in individualistic vs. collectivistic cultures.

Method summary

He sampled people from 2 territories in Israel – the urban and kibbutz sectors (the urban sector is individualistically oriented and the kibbutz is collectively oriented).

Results

He found that people from the urban sector gave more independent responses, while the interdependent self was more salient in the kibbutz sector.

He also found that, regardless of cultural background, the participants typically gave more independent response than interdependent responses. He therefore suggests that regardless of cultural origin, people tend to define themselves mainly through independent cognition. The difference b/t cultures is expressed in the proportion of indep. statements as compared with interdep. statements.

He also found that people in the 2 different cultures had different self profiles. Although in both cultures, the independent self consisted of the same dimensions (physical, personal traits, hobbies, and preferences, and aspirations), the salience of each dimension varied across cultures. In the individualistic cultures, the main category was personal traits. That is, those in the individualistic culture tended to characterize themselves most often

through psychological attributions, which are context free. In the collectivistic culture, the main category was hobbies and preferences. So, those in the collective culture defined their interdependent self through context-related statements. (This is consistent with Markus & Kitayma's work – the view of self is not separate from the social context, but more connected and less differentiated from others)

The results also showed different profiles across cultures of the interdependent self. The same dimensions emerged in both cultures (global, family, residence, military service, work and school, and political affiliation). However, the most dominant category in the individualistic culture was work and school. And the most dominant one in the collectivistic culture was residence.

BIII-5_Menon, T., Morris, M. W., Chiu, C., & Hong, Y. (1999). Culture and the construal of Agency: Attribution to Individual Versus Group Dispositions. Journal of Personality and Social Psychology, 76, 701-717.

The authors argue that cultures differ in implicit theories of individuals and groups. North Americans conceive of individual persons as free agent, whereas East Asians conceptualized them as less agentic than social collectives.

Main points:

East Asians were more likely to focus on and attribute causality to dispositions of collectives.

This notion of agency may be linked to the concept of mastery and fatalism and maybe the concept of doing versus being in the Cultural Lens Model. To the extent of how connected we are to the group we would see the extent of self as a free agent. The more agentic the self is the more mastery the self has. This idea is a speculation of how the concept of agency may be linked to the model.

BIV-1_Hong, Y, Morris, M., Chiu, C., & Benet-Martinez, V. (2000). Multicultural minds: A dynamic constructivist approach to culture and cognition. American Psychologist, 55(7), 709-720.

Woven throughout this article is the idea that culture guides cognition. The details of the research, however, are not very relevant. The focus is on bicultural individuals – people who have internalized more than one culture. They argue that the assumptions of cross cultural psychology have not fostered the analysis of how people incorporate more than one culture. They discuss how cultural knowledge has been conceptualized as a contact lens that affects the individual's perceptions of visual stimuli all the time. They say that this leaves little room for a second internalize culture (as with bicultural individualized – people who have internalized two cultures).

They introduce the idea of "frame switching." This is the idea that bicultural individuals switch b/t cultural lenses based on their environmental cues. They talk about internalized culture as a network of discrete, specific constructs that guide cognition only when they come to the fore in an individual's mind. Although contradictory constructs can be simultaneously held by an individual, they cannot simultaneously guide cognition. They suggest that research on bicultural individuals may be a good way to identify cultural effects on cognition. (their concept of frame switching is important for our idea of a cultural lens. They suggest that people do have the capacity to look at the world through a different lens).

BIV-2_Leroux, J. (1994). Cognition. In D. Matsumoto (Ed.), People: Psychology from a Cultural Perspective. Pacific Grove, CA: Brooks/Cole Publishing Co.

The author assumes that all human beings have similar basic mental processes. However, he believes that people from different cultures differ in the manner in which they organize, transmit, and act upon information.

His chapter basically talks most about categorization (e.g., colors, shapes) and memory (e.g. relationship b/t oral traditions and long-term memory capacity), which aren't particularly relevant to our project. Not much discussion on differences in reasoning or decision making.

BIV-3_Matsumoto, D. (1994). People: Psychology from a cultural perspective. Pacific Grove, CA: Brooks/Cole Publishing.

The author adopts Barnouw's (1995) definition of culture as a set of attitudes, values, beliefs, and behaviors shared by a group of people, communicated from one generation to the next via language or some other means of communication. He does, however, argue that this definition is fuzzy and that there are no hard and fast rules of how to determine what a culture is. He says that culture is a sociopsychological construct – a sharing of psychological phenomena across people. He distinguishes culture from race and from nationality.

One of the chapters was written with Kitayama and Markus. It discusses the same ideas detailed in their paper (1991) (e.g., indep/interdep. self construals).

Another chapter written with LeRoux entitled "Cognition" discusses several basic mental processes (including categorization, memory, and problem solving) and how these

processes differ to some extent across cultures. The authors state that when cultural differences in cognition do occur, they appear not to be differences in cognitive abilities or capacities, but rather differences in preferences for certain cognitive styles.

BIV-4_Park, D., Nisbett, R., & Hedden, T. (1999). Aging, culture, and cognition. Journal of Gerontology, 54(2), 75-84.

The authors argue for the importance of developing a theoretical and empirical understanding of cultural differences in cognitive processes that exist b/t Asian and Western cultures. Little attention has been paid to this issue because cognitive psychologists generally assume that all people function the same way.

They argue that there are fundamental differences in the manner in which people perform many cognitive operations as a function of culture. They argue that culture may bias people to process certain types of information at the expense of other information, and culture may also affect processes applied to the selected information.

They talk about the holistic versus analytic reasoning of Asians and Westerners, respectively, which has been noted in other annotations (e.g., Choi & Nisbett, 1998; Ji, Peng, & Nisbett, 2000).

They provide a literature review of the research that has been conducted to date on culture and cognition. (these have been annotated).

C-1_Maddux, W. W., & Brewer, M. B. (2005). Gender differences in the relational and collective bases for trust. *Group Processes & Intergroup Relations, 8,* 159–171.

It is discussed that gender differences could be due to men having more independent construal of self (exclude others' influence) while women having more interdependent construal of self. At the collective level, sense of belonging is essential in everyone and thus men may emphasize on group membership and large collectives. Women may be willing to sacrifice for a friend but men sacrifices for group.

This study aimed to examine the gender differences in interdependence within trust. It is supported that women are relationally interdependent while men are collectively interdependent. Men's trust was highest for ingroup while even a potential relationships connection with outgroup members are sufficient to gain trust of women supporting relational interdependence.

**the understanding of gender differences in trust is important given that trust is involve in everyday lives, from social to economic to politics.

C-2_Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: A meta-analytic test of their unique relationships with risk taking and job performance. *Journal of Applied Psychology, 92*, 909–927.

Definition: Trust is viewed as (1) behavioural intention, which is similar to choosing, judging, or preferring (2) similar to trustworthiness, traits that inspire positive expectation on others (3) traits that develop in childhood and remain stable throughout adulthood (4) cooperation or risk taking.

Mayer et al.'s integrative model defined trust as "willingness of trustor to be vulnerable to the actions of a trustee based on the expectation that the trustee will perform a particular action"

Rousseau et al.'s defined trust as "psychological state comprising the intentions to accept vulnerability based on positive expectations of the action of the trustee".

Researchers have separated trust from trustworthiness with ability, benevolence and integrity appears as antecedents of trust. Ability captures "can-do" dimensions of trustworthiness. Benevolence and integrity can be categorised as character, which captures the "will-do" dimension. Benevolence is similar to loyalty, caring, whereby trustee wants to do good for the trustor; integrity is similar to justice, fairness, whereby trustee adhere to moral justice. Both benevolence and integrity functioning independently and have unique relationships with trust.

Trust propensity is however stable traits that affect the likelihood of trust. It is most likely to be the base of trust in contexts involving unfamiliar individuals. Trust propensity is referred to as generalized trust or dispositional trust as well. Its impact is retained even after controlling for the trustworthiness.

Present meta-analysis displayed the importance of the three dimensions of trustworthiness given the significant relationships with trust. Trust propensity is related to trust even when trustworthiness was considered and it also correlated significantly with the three

dimensions. Trust correlated moderately with risk taking and the three aspects of job performance which are task performance, citizen behaviours, and counterproductive behaviours. Relationship between trust and its antecedents and outcomes did not differ much in both leaders and employees with the exception of stronger relationship between integrity and trust for leaders showing that this is more obvious in context with greater power distance. The three dimensions were showed to have significant relationships with behavioural outcomes and affective commitments and not only trust. Affective commitment predicts citizenship behaviour and counterproductive behaviours. These findings highlight the benefits of facilitating trust in the workplace given that trust predicts risk taking behaviours, counterproductive behaviours and related to affective commitments.

C-3_Blodgett, J. Bakir, A., & Rose, G. (2008). A test of validity of Hofstede's cultural framework. *Advances in Consumer Marketing, 25,* 339–349.

This study examined the validity of Hofstede's cultural framework at the individual unit of analysis. Hofstede's cultural framework has been used widely and it is surprising that its psychometric properties have not been rigorously scrutinized according to the authors. Previous studies have reported overlapping among the various dimensions, low reliability for the dimensions and little congruency between Hofstede's (1980) and Schwartz's (1994) cultural framework (Bakir, Blodgett, Vitell, & Rose, 2000; Kagitcibasi, 1994; Ng, Lee, & Soutar, 2007).

157 respondents were asked to review the original 32-item and categorized the dimensions accordingly (PD, I-C, uncertainty avoidance, masculinity/femininity). Most of the items were found to lack face validity, with the items were correctly matched to the dimensions only 41.3% of the time. The reliability of all four dimensions was not reliable. This cultural framework lacked of both convergent and discriminant validity when applied at individual unit of analysis. The authors clarified that the purpose of this study was not to critic on Hofstede's framework but hoped to lead to a valid measure of cultural dimensions that can be used at an individual level as well.

C-4_Flanagan, C., & Gallay, L. (2008). Adolescent development of trust. *CIRCLE Working Paper, 61,* 1–18.

This project aimed to understating the dimensions of trust and interrelationships in adolescents. The dimensions of trust that were assessed were social trust, trust in elected officials, trust in the responsiveness of government to ordinary people, trust in the American promise, and trustworthiness of media. 1,670 students aged from 12-19 were survey in the USA. Measurement of trust was administered twice.

Levels of trust declined from T1 to T2 in general. Trustworthiness of media, trust in Govt responsiveness to people declined significantly while social trust increased significantly. Moderate stability was observed in most trust over T1 and T2 indicating room for change with educational interventions having some roles to play. The different dimensions of trusts were correlated with each other and moderate correlations indicated dispositional bias underlying the inclination to trust, or is referred as optimistic bias. Girls generally reported lower trusts than boy though not consistent while higher parental education level were related to high level of social trust and trust in elected officials.

Factors like positive classroom climate, higher parental education, parent engagement in politics, displaying values of personal responsibility, gender, feelings of student solidarity and parental civic engagement were associated with different dimensions of trusts.

There may be a general "diffuse support for the system" underlying the findings with adolescents are disposed to trust people in general (social trust) and tend to see government and elected official positively, believe that Americans have equal opportunity.

C-5_Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. ***Academy of Management Review, 32,*** **344–354.**

Time Dimension:

Propensity is important in the beginning of the relationships while ability and integrity form during the relationships while benevolence takes more time. In a laboratory setting, correlation between benevolence and integrity is higher because the relationship is not long enough to provide real data about benevolence, to be separate from integrity.

Trust, Risk, and Control System:

Perceived risk moderates trust and risk taking in the present model while control system deal with risk in relationship as well. When risk is greater than trust, control system moderated the difference by lowering perceived risk to a manageable level. The downside of control system will be that it inhibits development of trust when it is too strong because it caused one's actions to be viewed as responses to control system and not due to integrity or benevolence.

Reciprocity of Trust:

There are mixed results in regards to this. It was claimed that trust in leader-member exchange (LMX) is mutual and reciprocal however in other setting; trust is not necessary mutual or reciprocal.

Measurement of Trust as Willingness to be Vulnerable:

A measurement with 4-item is used to measure trustor's willingness to risk trusting the trustee and this measure was robust, stable and valid. This measure has been expanded to 7- and 10-items measure.

New dimensions related to trust:

The present model is a cognitive approach to trust as it reflect how one processes information about others by deciding to take the risk. However trust also involves emotions with affective components influenced one's evaluation of trust, causes one to take sudden risk. When emotions dissipate, cognitive aspects of evaluations remain. Emotional components of trust also related to violation of trust, one has to understand how the damaged to trust is done before one can repair the trust. There have been mixed evidence of trust and distrust as separate or same dimension with opposite ends. There is no credible evidence of that concept of trust and distrust is theoretically different.

Culture and trust:

Propensity affects trust across culture with personality, experiences and culture being involved. Culture like masculine and feminine culture value different variable such as masculine culture values ability while feminine culture values benevolence.

C-6_Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. ***Academy of Management Review, 20,*** **709–734.**

Need for Trust:

- The workforce is increasing in diversity with people from different backgrounds and hence less likely to achieve mutual attraction. Trust is thus needed to act as a mechanism to get people to work together.
- The changing concept of workplace such as participative management style and use of self-directed work teams highlight the importance of trust in context where control is minimize and interaction increases.

Definition of Trust:

- Johnson-George & swap (1982): willingness to take risks may be one of the few characteristics common to all trust situations
- The current research: willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party. This is applicable to a relationship with another identifiable party who is perceived to act and react with volition toward the trustor.

Trust has often been confused with cooperation, confidence and predictability. Trust is not cooperation because while trust involve a party at risk while cooperation does not and cooperation could occur when one's motives lead to behaviour that coincides with the desire of trustor even when there is not trust. The difference between trust and confidence can be understood in term of the recognition of risk. If one considers alternatives and recognizes the risk, it is trust that is involved while there is no need to consider alternatives if one is being confidence. Trust goes beyond predictability and predictability is being claimed to influence cooperation. Expecting and predicting a party that will act positively enhance one to cooperate with the party but predictability itself is insufficient to trust.

Factors of trustor and trustee that lead to trust:

- There are various approaches that focus on generalized trust which is similar to personality traits (propensity to trust), which lead to expectations about others' trustworthiness.
- Trustworthiness is assessed as the motivation to lie. It is the traits and behaviours of trustee that himself or herself to be trusted.

Factors of trustworthiness:

- Ability: Trust is domain specific (e.g. a person may have the ability in analytic tasks but not interpersonal interaction)
- Benevolence: Low motivation to lie, motives and intentions and also altruism are variables that were included in previous researches which were similar to the notion of benevolence.
- Integrity: It involves adherence and acceptability of principles that are acceptable and this factor of trust was strongly supported by previous study.
- These three factors are interrelated and each of them may vary along a continuum.

Risk taking in relationships (RTR):

- There is a difference between trust and trusting behaviour as trust is the "willingness" to assume risk while the latter is "assuming" risk.
- In this paper, outcome of trust is observed in RTR. It specifically involves "trustor's belief about gains or losses outside of considerations that involve the relationship with

the particular trustee". It is proposed that level of trust should be comparable to level of perceived risk and if the level of trust exceeds the threshold of perceived risk, trustor is then engage in RTR.

C-7_Lewicki, R. J., Mcallister, D. J., & Bies, R. J. (1998). Trust and distrust: New relationships and realities. *Academy of Management Review, 23*, 438–458.

Defining Trust and Distrust:
Mellinger (1956): Trust is confidence in other's intentions and motives, and sincerity of words.

Read (1962): Built on Mellinger's and suggested that one expects their interests to be protected, promoted by those they trust, confident about disclosing personal information, assured of information sharing, prepared to overlook breaches of the trust relationship.

Deutsch (1960): one's confidence in intentions and capabilities of another and the belief that the other would behave as hoped. Distrust is confidence about one's undesirable behaviour, stemming from knowledge of another's capabilities and intentions.

Recent research: Focus on behaviour, with one's optimistic expectation of other's behaviour and willingness of one to be vulnerable to other's actions.

The author: Trust is "confident positive expectations regarding another's conduct" and distrust is "confident negative expectations regarding another's conduct'. Both trust and distrust involve movements towards certainty, and they are not the opposite on a single continuum but two separate but related dimensions. It is thus possible for one to trust and distrust another person simultaneously.

As bipolar construct:
- Personality Theorist: Exist at opposite ends of trust-distrust continuum (Rotter, 1971)
- Low trust indicates high distrust (Stack, 1988; Tardy, 1988)
- Behavioural Theorist: trust is cooperative conduct while distrust is non-cooperative conduct (Arrow, 1974; Axelrod, 1984; Coleman, 1990; Miller, 1992)
- Social psychologist: conflicting psychological states of trust and distrust are unstable and transitory.(Lewicki & Bunker, 1995; Lewis & Weigert, 1985)

Normative View:
- Personality researchers: distrust is psychological disorder to be corrected (Erikson, 1963)
- Behavioural theorist: desire to solve conflict situations and promote collaboration characterized by trust (Axelrod, 1984).
- Social psychology/ Sociologist: trust is necessary ingredient for social order, focus on the study of emergence and development of trust.

Relationships:
- As unidimensional construct, such as one single component determining the relationship.
- Focus on the balance and consistence in relationships (behaviours), it reciprocates.

New relationship realities:

- Relationships are multifaceted, thus one has multiple views over another person given there will be various encounters among people in different contexts. Relationships matured with frequent interactions, duration and diversity of challenges over time.
- Balance and consistency are just temporary states and those who are in these states strive to offset the inconsistency.

New view of trust and distrust: Separate dimensions

- Trust and distrust is two separate construct that are reciprocal.
- This concept can be highlighted in a framework by separating both trust and distrust into different dimensions (i.e. high and low trust, high and low distrust)

Support for the new view:

- 1.Opposite or trust is not distrust: Watson & Tellegen (1985) found
  *high positive affectivity (active, strong, excited) are not synonymous with low negative affectivity (calm, relaxed, at rest)
  *low positive affectivity (sleepy, dull, drowsy) are not synonymous with high negative affectivity (distressed, hostile, fearful)
- Antecedents and consequences of positive and negative affect are distinct.
- 2. Ambivalence towards trust and distrust whereby coexisting of trust and distrust is possible.
- The earliest evidence could be Freud's reflections on the coexistence of opposite affections, such as abusive individual may have strong feelings of love as well towards the other.
- White Americans can be pro-Black and anti-Black simultaneously (Katz & Hass, 1988; Katz et al., 1986)
- As social contexts become complicated and rich, the likelihood of ambivalence increases.
- 3. Trust and Distrust are separable: they are separate and distinct constructs and coexist.

New directions:

- Trust and distrust exists in almost all social systems and this supported the future research effort to address functionality of distrust. The dynamic between trust and distrust is said to be productive. It is believed that distrust in fact contributed to the economic order and its efficiencies should be addressed.
- The underlying principle of distrust is important in understanding organizational functioning. The need to manage trust/distrust ambivalence in organizational settings.

C-8_Foddy, M., Platow, M. J., & Yamagishi, T. (2009). Group-based trust in strangers. *Psychological Science, 20*, 419–422.

One does not usually trust strangers blindly, but determine the trust based on cues related to the strangers such as social category and usually trust those who are from the same social category. This is termed group-based trust. There are two possible group-based trust which are:

(1) Attribution of favourable characteristics to in-group. Judge in-group members to be nicer, helpful than out-group (Brewer & Silver, 1978; Platow, McClintock & Lierbrand, 1990); in-group are more generous, trustworthy and fair (Boldizar & Messick, 1988; McAllister, 1995).
(2) Expect altruistic and fair behaviours from in-group members. Those in the same group

are expected to help each other, reciprocal manner and benevolent treatment.

Two studies were conducted to investigate group-based trust in strangers. First study involved choice decision by participants in regards allocation of money by in-group and out-group individual. In this situation, participants preferred in-group allocator. Participants expected more money and preferred in-group allocator who knew about the in-group status of the participants. This preference did not remain in condition where allocator was not aware of the participants' in-group status. Second study showed that the different level of trust on in-group allocators was not solely based on the positive impression of in-group member but the better expectation of altruistic and fair behaviours from the allocator.

C-9_Hakansson, P., & Sjoholm, F. (2007). Who do you trust? Ethnicity and trust in Bosnia and Herzegovina. *Europe-Asia Studies, 59,* 961–976.

High trust among people promotes economic growth, democratisation, well-performed institutions, and personal health and happiness.

Definition:

- Generalised trust is trusting people in general, known or strangers.
- Partial trust is trusting one who are perceived as "same category"

Ethnicity and Trust

Heterogeneous society has lower partial trust with different ethnic limit the amount of social interaction hence lower generalized trust. Societies may be characterized by ethnic, politic, religion or income while homogenous associations in heterogeneous societies may strengthen trust and cooperation within the group, but the opposite is true for between groups.

- Trust is relatively low in ethnically heterogeneous countries as researched by Zak & Knack, 2001. Trust in US correlated negatively with the level of heterogeneity in the community (Alesina & La Ferrara, 2002). Trust may differ between homogeneous and heterogeneous ethnicity in Eastern Europe as indicated by Dowley and Silver (2002).

The study:

- Social Trust Survey was conducted in Omnibus with 1858 respondents.
- Response to "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"
- Results suggest positive correlations between ethnic homogeneity and general trust with the 6 regions with more homogeneous culture display more trust relatively.
- Various factors determine trust such as one's experience, voluntary participation, urban vs. rural populations.
- Results found high household income correlated positively with trust, supported by earlier findings of trust being influenced by everyday's struggle to survive. Education, age, gender, rural vs. urban did not have effects on trust.
- Partial trust is investigated by asking the Qs "people have different opinions about different groups of people. Do you think you can trust: All, Most, Some, No people in the following groups? – Family and relatives, neighbours, people you knew well, same nationality, different nationality and different way of life.
- Results showed respondents' trust decrease with social distance between themselves and the group, with highest trust to family and lowest to those with different nationality or different way of life.
- One interesting finding was those who trust people of the same nationality in fact trust

those who are from of different nationalities as well.

C-10_Powell, C. M., & Heriot, K. C. (2001). The interaction of holistic and dyadic trust in social relationships: An investigative theoretical model. *Journal of Social Behaviour and Personality, 15*, 387–398.

Definition:

- Lewis & Wiegert (1985) proposed trust as "reciprocal orientation and interpretative assumption that is share, has the social relationship as the object, and is symbolized through intentional actions"
- Holistic trust is generalized trust we have in our societal institutions and culture, underlies unspoken rules to guide our interactions.
- Dyadic trust is individual's regard for others as cooperative, reliable, honest and altruistic. Leads others to take actions with risk vulnerability or dependence on others for valued outcomes. This is divided into cognition-based trust and affect-based trust.
- McAllister (1993) proposed affect-based trust as "emotional bonds that can connect individuals participating in interdependent relationships".
- McAllister (1993) proposed cognition-based trust as "extent to which an individual is competent, dependable, reliable and responsible in carrying out the duties of his or her occupational role"

It is suggested that both dyadic trust and holistic trust have causal relationships. Most relationships exist within a social context and thus cannot simply reduced to just dyadic trust. It is possible to examine effect of holistic trust on dyadic trust if on interact with harmony in within a society.

Foundations:

- From the view of social holistic, it is impossible for society to be without collective mutual commitment, shaped by both dyadic and holist trust.
- Social holistic trust protect function in complex societies, allows one to act effectively in areas which we are not specialized.
- Luhmann (1979) and Fukuyama (1995) proposed that trust within society has impact on dyadic trust levels.

The current model incorporates stages for dyadic trust and relationship development:
(1) initial contact with mutual orientation and impression creation – rely on reputations, situational attributes
(2) Testing, intense exploration and learning – minor risk taking, evaluate others abilities to produce mutual beneficial outcomes.
(3) Expansion, testing of trust and negotiation of expectation – role and personal behaviours during first contact become the bases for trust development.
(4) Maturity, enduring period with stable relationships holistic trust affect each elements throughout the process – happen when mutual expectations met, perceived equitable outcomes and effective communication
(5) Dissolution – when outcomes are no longer mutually beneficial, or organizational goals diverge

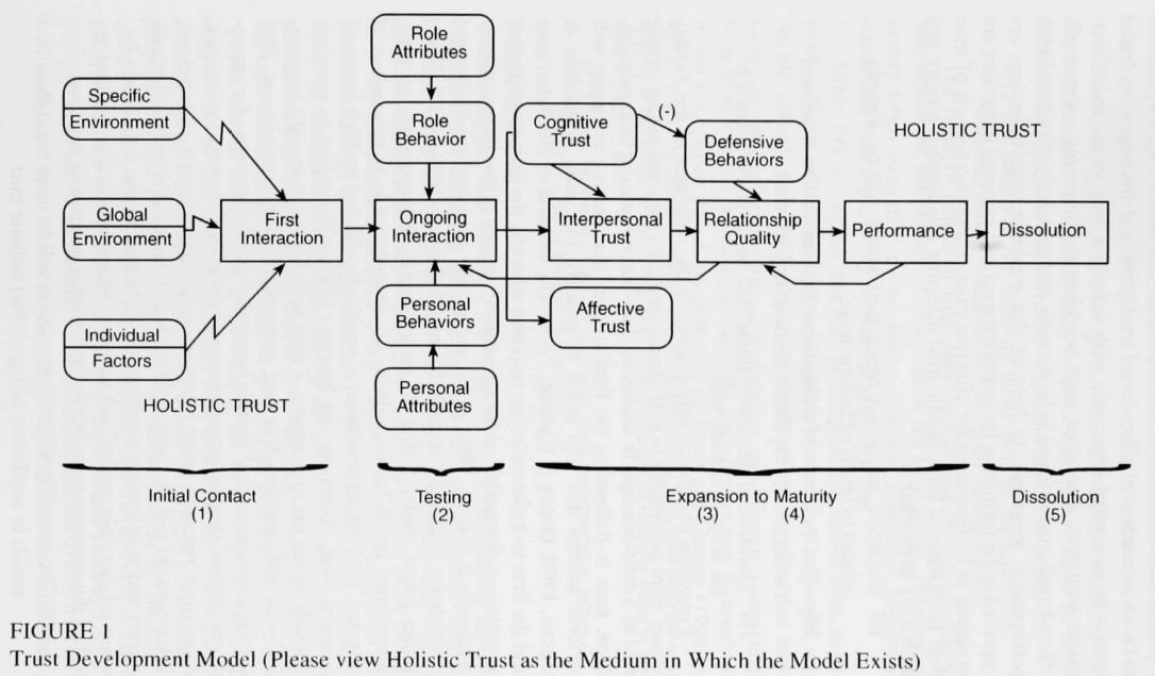


FIGURE 1
Trust Development Model (Please view Holistic Trust as the Medium in Which the Model Exists)

C-11_Mcallister, D. J., Lewicki, R. J., & Chaturvedi, S. (2006). Trust in developing relationship: From theory to measurement. *Academy of Management Proceedings,* 1–6.

Calculus-based trust (CBT) is confidence founded on the understanding that both potent rewards for preserving that confidence and punishment for violating it are in place, might be driven by value of benefits and cost of cheating.

Knowledge-based trust (KBT) is confidence in another's predictability, dependability, and reliability, requires good information of one that comes from experience of working together and communication.

Identification-based trust (IBT) is confidence based on understanding of internalization of each others' desires and intentions has been achieved, support one another in pursuit.

These trusts emerge in stage-wise manner with CBT provide good sense for initiation of interdependent and as CBT is validated, KBT emerges with benefits from working together is obtained. As the relationships developed, IBT emerges when interactions are seen as mutually beneficial and relationships are becoming unique and personal.

Three studies were conducted to measure the three dimensions of trust, examining the factor structures of trust within various contexts, and examine whether these tryst can be used to predict relationship-related behaviour. Affect-based trust (ABT) and communication were identified in study 1 besides DBT, KBT, and IBT reflecting the quality of emotional bond within trust relationships. KBT, IBT and ABT were high in "trust most" relationship and low for "violated trust" relationships. Findings showed KBT, IBT and ABT were invariant, distinct and reliable across three settings (peers, supervisors, and subordinates). Trust can also be used to assess trust in groups. This study also suggests that CNT or DBT may reflect distrust rather than trust and emergence of ABT showed a need to address the emotional bonds during trust development.

C-12_Lehmann-Willenbrock, N., & Kauffeld, S. (2010). Development and construct validation of the German workplace trust survey (G-WTS). *European Journal of Psychological Assessment, 26,* 3–10.

Co-worker trust provides them with resources for other activities (McEvily, Perrone & Zaheer, 2003) while trust in the workplace can be refer to the whole organization, interpersonal or institutional trust.

WTS (Ferres, 2002) was developed through qualitative and quantitative methods while factor analysis of the original 36 items yielded three factors, which are co-worker, supervisor and organizational trust. WTs showed good internal reliability, concurrent validity, and convergent validity. All WTS factors are associated positively with perceived organizational support, affective commitment, and transformational leadership while associated negatively with intention to leave.

Consequences of Trust in the Workplace:

Trust implies positive expectations on others' behaviours, provide feelings of security and serenity which enhanced job satisfaction, provide basis for coorperation. Coworker and organizational trust is related to overall job satisfaction. With trust, information can be exchanged freely between team members. Trust in supervisor was related positively to the innovative and quantity of ideas for improvement because employees trust their supervisor and are more likely to express themselves. Trust will motivate employees to identify with organizational goals and values and loyalty.

The study:

427 German employees were included. G-WTS and different questionnaires such as job satisfaction, cohesion, affective commitment, and innovative behaviour were combines into a questionnaire.

G-WTS is a psychometrically valid instrument for measuring trust with regards to co-workers, supervisors, and organizations. G-WTS has established relationships with job satisfaction, with group cohesion, innovative behaviour and affective commitment. The psychometric properties are comparable to the original WTS. G-WTS has convergent validity as it trust in co-workers, supervisor and organization predicted job satisfaction. Supervisor's trust is the only predictor of innovative behaviour and only organizational predicted affective commitment, predictors for cohesion include both co-worker trust and supervisor trust with co-worker trust are higher. Supervisor trust predicts cohesion can be understood in terms of a match between supervisor's leadership qualities with the team's characteristics, being perceived as part of the team and subsequently improve cohesiveness.

C-13_Williams, M. (2001). In whom we trust: Group membership as an affective context for trust development. *Academy of Management Review, 26,* 377–396.

This article discussed trust in relation to group membership and the affective Component in influencing trust. It started with the definition and overview of the development of trust, and then discussed the factors that may influence trust in dissimilar social group. A model depicting the interactions between social groups and affective components is described. Boundary conditions, implications and contributions of this model are discussed as well.

Generally, trust is important in organizations because it facilitate cooperation and social interactions, minimizes the need to monitor others' behaviours and minimizes negotiation costs. Trust is required to smooth out the cooperation across boundaries which are not often easy because of the dissimilar group members. Affection and belief towards certain

social group influence interpersonal interactions and trust development subsequently. Positive or negative expectations towards another group determine the positive or negative beliefs of the group members which then affect the trustworthiness.

Definitions:

1) Trust: willingness to rely on another's actions in a situation involving the risk of opportunism (Mayer, Davis, & Schoorman, 1995; Zand, 1972).
2) Trust is based on "individuals' expectations that others will behave in ways that are helpful or at least not harmful" (Gambetta, 1988). Expectations are based on one's perceptions of others' trustworthiness and affection towards others.

Trust development:

- Process of experiential learning about trustworthiness of others through interactions.
- Both perceived trustworthiness and affection are said to influence the development of trust.
- Perceived trustworthiness: social interactions provide individuals with updated information about the other person's trustworthiness, cognitive predictor of trust.
- Ability, benevolence and integrity are three basic categories of trustworthiness.
- Affect: Affective attachments form the foundation for caring and benevolent acts which develop trust while affective responses influence one's evaluation of feelings, attachment and trust towards others.
- Some theorists conceptualise trust development in stages with affective component influences the deeper level of trust, which are stable across time and situations with little trust violations.
- Theorists who see trust as continuous process ignore affect as a separate component.
- The present article illustrates a new affective-cognitive model of trust, illustrating how affective component influences cognitions, motives and behaviours which are related to trust.
- It is important for an organization to understand the interaction and influence of affect, perceived trustworthiness and group memberships on trust.

Social group categorization:

- A psychological mechanism whereby membership influences trust. It is a category-driven processing/ cognitive shortcut.
- After categorization, one's impression and judgements are driven by the categorization process or individuating information (age, gender, appearance etc)
- Likely to occur when one is under time pressure, cognitively busy, or not motivated to make accurate impression.
- Subcategory is influenced by original category but with exceptional features.
- 3 reasons to look into category-drive processing are: (1) people perceive others who are from different groups as though they are representatives of their groups (2) processing in subcategory is still influenced by initial categorization process (3) affect triggered by categorization process influence one's general affective state and nonconscious effects on judgments.
- Contextual factors may influence category-driven process as well.

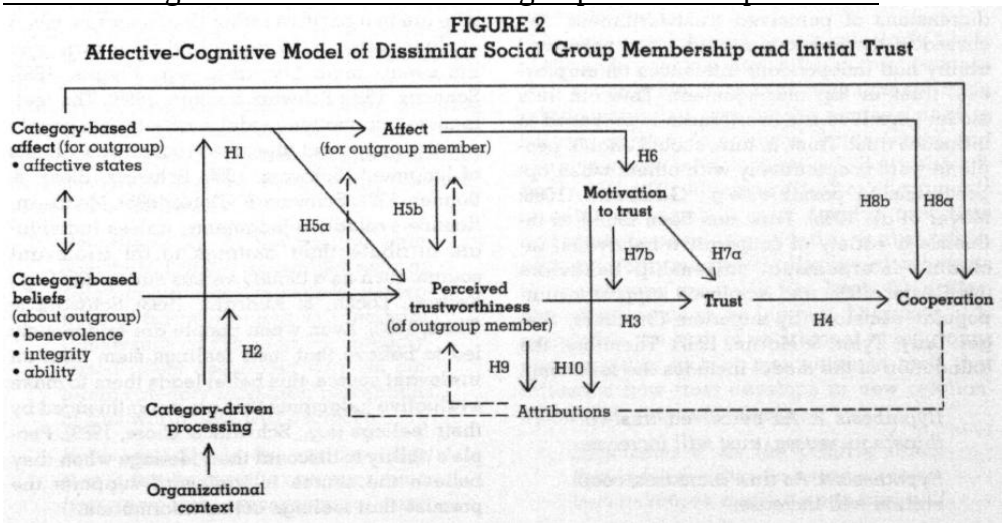
Group membership and predictor of trust:
(interdependent similar and dissimilar, and independent dissimilar and perceived trustworthiness)

- Positive beliefs associated with similar group influence trust and cooperation subsequently. Perceived ingroup members as more trustworthy, honest, and cooperative. One's identification with group and the perceived importance of identity affect the extent that similar group affects behaviours.
- People believe that ingroup members behave accordingly to group values and care more for the members. This lead to lack of positive perceptions towards outgroups members.
- Dissimilar group may cause competitive interdependence when there is a threat to the goals of ingroup or personal goals. Real conflict of interest occurs when they compete for scarce resources and caused negative perceptions of benevolence while symbolic conflicts occurs when outgroup violate ingroup's norms and values and this undermines perceived integrity, and generate distrust.
- Cooperative interdependence occurs when one gain when the other succeeds. Real cooperation happens when both groups interact, and form psychological relationships for mutual gain. Symbolic cooperation happens when there is strong similarity in values, norms, and attitudes. This may lead to positive perceptions of trustworthiness.
- Independent dissimilar groups are believed to have little ability to influence ingroup in achieving goals, and have values which neither strongly support nor violate ingroup's values.

(interdependent similar and dissimilar, and independent dissimilar and affect)

- Similar group membership and group identification generate positive feelings which is associated with affective attachment and this attachment caused a gap in positive affect towards outgroup members.
- Outgroup interdependence generates emotions, whether helpful or hindering. Real competition generates intense emotions like anger or fear while symbolic conflict also generates negative affect or stronger feelings of disgust. People have additional anxiety when thinking of interacting with competitive outgroups because they fears of hostility, being challenged or perceived prejudices.
- Real cooperative actions generate positive emotions like hope and happiness while symbolic cooperation generates positive affect or admiration.
- Dissimilar outgroup independence generate neutral or general positive or negative feelings associated with the affective tone of general stereotype.

<u>Affective-cognitive model of dissimilar group membership and trust</u>



1.Category-Driven Processing
- Category-based beliefs influence people's beliefs and feelings towards other group members.
- Category-based factors are said to affect perceived trustworthiness, and perceived trustworthiness influence trust, which then influence one's cooperation with others.

2. Affect and Trust Development:
-affective states and attachment determine how people perceived trustworthiness in others, motive people to trust others, and their inclination to cooperate with others.
-Perceived trustworthiness: People use feelings as information when making judgements. Negative affect may have nonconscious influence as people have the tendency to suppress negative emotions towards an out-group members but positive affect.
-Motivation to trust: desire to view others as trustworthy to be relied on. Affect influence motivation to trust because they are associate with motivation to approach or avoid others. Affective attachment is associated with motivation to trust because it not only motivates people to maintain relationship but trigger their needs to belong.
-Cooperative behaviour: positive affect influenced social behaviours such as helping behaviour, and cooperation, and sociability. When there is trust, positive affect facilitate cooperation.

3. Feedback Processes
-Attribution is important for one to update thoughts and feelings about others' trustworthiness.
- Violation of trust is perceived as isolated event, based on the internal or external attribution and hence less likely to influence perception of trustworthiness.
- Attributions also influence one's affective responses since emotions are related to different cognitive appraisals.
- Forgiving attributions are often made for in-group members.
- Category based affect influence attributions indirectly through influence on affect and motivation to trust.

Boundary Conditions: Influence of Context
- Influence the extent to which category-drive processing will influence these interactions
- People use demographic categories to categorize others.

Model limitations:
- Dynamic processes occur when both perceived each other's membership and experience themselves as the target of the other person's impression formation.
- Contextual factors were explored during test development stage but individual-level influences were not.

Future directions:
- The model needs to be tested in different organizational setting, using experimental studies, and research on diversity and longitudinal study is required to test the model.

**organizations can apply this model in changing one's personal beliefs or provide chances for within group interactions.

C-14_Lewicki, R. J., Tomlinson, E. C., & Gillespie, N. (2006). Models of interpersonal trust development: Theoretical approaches, empirical evidence, and future directions. *Journal of Management, 32*, 992–1022.

-interpersonal trust has allowed for cooperation and competition, resolution of conflicts, and economic exchange.
-trust predicts job satisfaction, organizational citizenship behaviours, organizational commitment, turnover and job performance.
-trust research emerges as behavioural tradition (rational-choice behaviour) and psychological tradition (intrapersonal states)

1) Behavioural Approach
   - Cooperative behaviour is acceptable.
   - Trustee's intention, motives, trustworthiness are inferred from the cooperative choices
   - Assume to begin at 0
   - Rely on analysis and predisposition of situation.
   - Cooperative motivation lead to cooperative choice than competitiveness
   - Bayesian-like decision: scrutinizing relevant information to make wise decision.
   - Simply put, level of trust is dependent of level of cooperation.

2) Psychological Approach – unidimensional
   - Emphasizes cognitive and affective process, understand internal psychological processes and dispositions that affect choices.
   - Rousseau et al. (1998) defined trust as "psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another"
   - There are 2 interrelated cognitive processes (1) willingness to accept vulnerability of others' actions (2) positive expectations of one's intentions, motivations, and behaviour.
   - Baier (1985) defined trust as "accepted vulnerability to another's possible but not expected ill will toward one"
   - Robinson (1996) defined trust as "expectations, assumptions or beliefs about the likelihood that another's future actions will be beneficial, favourable or at least not detrimental".
   - Mayer et al. (1995) defined trust as "willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party"
   - Trust is deemed to be a single factor with cognitive, affective, and behavioural intention as subfactors. These subfactors affect each other and the combinations differ across various trusting relationship.
   - Cognitive subfactor encompasses beliefs and judgements while emotions are often being experienced in a trusting relationship.
   - Trusting behaviour involves confident expectation (cognitive) and feelings (emotions) that the other will honor trust.
   - Bipolar opposite of trust is distrust, "lack of confidence in the other, a concern that the other may act so as to harm one, that he does not care about one's welfare or intends to act harmfully, or is hostile"
   - Unidimensional approach suggested one's perception of other's trustworthiness lead to willingness to be vulnerable; have components like cognitive, affect and behavioural

intentions; and captured by unidimensional construct.
- Begin at 0 but then have to make decision whether to trust or not to trust while other argued that people experience high level of trust even early in a relationship. Culturally, some cultures are more trusting than others.
- Baseline distrust can be due to cultural or psychological bias, untrustworthy reputation, and context or situational factors.

3) Two-dimensional
- Trust allows possibility of undesirable behaviours to be removed from consideration while distrust reduces complexity, allowing undesirable conduct to be seen as likely.
- Trust is independent of each other.
- Interpersonal relationships are complex which then lead to many reasons for trust and distrust to emerge simultaneously.
- Relationships usually begin with low trust and low distrust.
- Frequency, duration and diversity of experiences either facilitate positive or negative confidence

4) Transformational approach
- There are different types of trust and the nature of trust transforms over time.
- Shapiro et al. (1992) describe trust as using a transactional framework (interdependence, risk, vulnerability). Deterrence-based trust (DBT), knowledge-based trust (KBT), and identification-based trust (IBT).
- Trust begins with DBT – managing possible vulnerability. DBT and KBT are the bases for trust building.
- Lewicki & Bunker (1995, 1996) describe trust development to stages of relationship development. DBT was renamed as Calculus-based trust (CBT) – not just vulnerability but also benefits to be gained from various transactions in relationships.
- Trust develop through the 3 bases within a relationship starting with CBT (0 or slightly above 0). Some relationship never pass through CBT (1) no need for more complex relationships (2) interdependence between both parties is heavily bounded and regulated (3) they have gained enough information to know the relationship is unlikely to develop (4) trust violations occurred.
- Shift from CBT to KBT symbolise change in emphasis on differences between self and other to emphasis on commonalities while shift from KBT to IBT is from simply learning about others to balancing between common identities while maintaining own distinctive identity in relationship.

**the author then discuss about issues related to measurement of trust.

C-15_Sutter, M., & Kocher, M. G. (2007). Trust and trustworthiness across different age groups. *Games and Economic Behavior, 59*, 364–382.

-Economic interactions are exchange of favors or good or services and without trust or trustworthiness, these exchanges would not take place.
-This study examined trust in 6 different age groups (N=662), from 8-year-old to retiree. The practical significance is addressing economic behaviour of several age groups with important stakes in industrialized societies.
-Adult's behaviour may be worthwhile of examining because this group controls the large part of society wealth.
-Widespread definition of trust as willingness of one to make him or herself vulnerable to

other party's actions.
-Generally, this study found that trust towards strangers among children to students increases while stays similar among adult and older people.
-Older subjects show less trust showing age is important factor.
-Subjects' trust behaviour may depend on expectation about the age of the interaction partner, which is an uncontrolled variable.
-Parents instilling trust in their children, thus trust is closely related to the number of contact with others, increases from childhood to working and stays more or less the same from then on.
-The return of the money from trustee to trustor does not only depend on trustor's transfer but final distribution of payoffs, resulting from both trustor's transfer and trustee's reciprocrate amount.
-Inequity aversion plays important role in trustee behaviour, reciprocity however cannot explain the study's data.
-Trustee's behaviour is consistent with the self-centred inequity aversion.
-Two other possible determinants of trust behaviour is altruism and risk aversion.

C-16_Edelenbos, J., & Klijn, E-H. (2007). Trust in complex decision-making networks: A theoretical and empirical exploration. ***Administration & Society, 39,*** **25–50.**

-it is difficult to have joint decision given the complex interorganizational networks are ambiguous and unpredictable.
-innovative solutions only emerge when they combine knowledge and resources.
-some said trust in modern societies is diminishing and have consequences on the collectivist societies while others argue that trust changes in which it has to be maintained through repair work instead of reliable performance in this unpredictable social situations.

C-17_Scott, D. (1983). Trust differences between men and women in superior-subordinate relationships. ***Group & Organization Studies, 8(3),*** **319–336.**

Trust is claimed to influence interpersonal relationships within organizations. It is necessary for open, accurate communications, influence group problem-solving and decision-making, affect others' attitudes and feelings about organization and their jobs, and determine how management control employees.

Griffin (1967) defined trust as "reliance upon the characteristics of an object, or the occurrence of an event, or the behaviour of a person in order to achieve a desired but uncertain objective in a risky situation".

Wrightsman (1974) collected data on trust among college students and found that half of the time women indicated more trust in authority figures than did men. This could be due to the socialization process that trains women to think positively of others; more protected than men from other unpleasant aspects of human nature; and they do not participate as much as boys in physically aggressive competitive activities.

C-18_Fetchenhauer, D., & Dunning, D. (2008). Do people trust too much or too little? ***Journal of Economic Psychology*****, doi:10/1016/j.joep.2008.04.006**

This study looked at if people's decision to trust is rational and if they have trust others too much or too little. "Rational" is seen as the one's "best response" after considering their expectations and general level of risk tolerance. Some individuals reciprocate trust out of altruistic motives, moral principles, guilt or even because they simply misread instructions.

(a) Realism is when people are accurate in their estimation of others.
(b) Cynicism is when people are too sceptical about others' trustworthiness.
(c) Gullibility hypotheses are when people systematically overestimate the trustworthiness of others. This includes the consideration of their tolerance of risk while making decisions.

There are three possibilities between one's level of risk tolerance in the lottery and trust game. (1) They may not differ in their willingness to take risk as trust is simply a risky choice. (2) People may be more risk averse in trust game than in lottery as they may be motivated by an aversion toward betrayal while losing in a lottery is purely luck. (3) People are more willing to take risk in a trust game as "play it safe" in trust game is perceived as sending a signal to receiver that he or she cannot be trusted, thus people choose to take risk to feel comfortable.

Two studies were being conducted. Study 1 examined if one would be overly cynical about the trustworthiness of others in a trust game. There were three sub-studies in Study 1, examining the decision making of individuals with the given $5 from the experimenter (see paper for details of study). It was then found that people are rather sceptical about the trustworthiness of their fellow partners from these studies, they generally underestimated the rate of their partners choose to hand the money back. Most of them displayed certain level of risk aversion and only willing to bet in the lottery if their chance to win was at least 62%.

Study 2 was an extension of Study 1 in various ways. Researchers wanted to test the cross-cultural stability of their findings by using individuals from other countries; hypothetical nature of the study might influence participants' final decision making, previous studies showed people tend to act in more socially desirable way when in a hypothetical situation; participation might considered it as "play money or free money" given that it was an experiment; thus this study was conducted in a way that participants had to earn the money and make their decisions whether to invest their earned money. Similarly, participants were rather sceptical about the trustworthiness of their partners and estimated only 59.1% of their partners would return the money where in face almost 90.4% actually divided the money equally between two parties. Participants were more willing to trust when the decision was real instead of hypothetical.

In this paper, it was discussed that there were costs to cynicism. When people underestimate others' trustworthiness, they received little in return e.g. behaviours resulted from cynicism is viewed as a signal of suspicion to the other person and thus the other person would be more reserved in giving back. Researchers discussed a few reasons for cynicism despites the costs. (1) motivated reasoning whereby people perceive themselves as especially ethical, pro-social and fair among their peers and thus being overly optimistic about how pro-social their behaviour will be (2)cultural norms about self-interest would affect one's estimation of whether others will honor their trust or act in a more selfish manner (3) in error management theory, cynicism is an adapted mechanism to avoid being exploited by others (4) cynicism may be also due to the flawed measures of one's rationality.

Given the scepticism among participants, they also showed that they trusted too much. They are more willing to trust their partners than to bet on a lottery. Participants tend to be more risk averse in a real situation than in hypothetical ones that was to give their money to their partner more often in a hypothetical situation. This can be explained as an emotional

dimensions attached to it. Deciding not to trust involves a touch of guilt or shame and is more intense in a real situation thus influencing their decisions.

In conclusion, participants were rather sceptical in estimating others' trustworthiness (cognitively) but trust too much when comes to handing over their money to their partners (behavioural). Thus researchers should be more caution in carrying out trust related study given the findings above. This study also showed that trust was not just as simple as calculations involving value and probability, but involving other factors such as emotional dimension. In future study, researchers could look into further as to why people choose to trust others at a behavioural level despite being sceptical about others' trustworthiness.

C-19_Niu, J., Xin, Z., & Martins, N. (2010). Trust discrimination tendency in average citizens at in-nation and out-nation levels in Canada, China and the United States. ***International Journal of Psychological Studies, 2*****(1), 12–24.**

This paper aimed to explore citizen's trust towards their own fellow citizens and other nation's citizens in America, Canada and China. There were some studies that were done in relation to trust, however most of them focused on in-nation trust and certain targeted group selected such as managerial pool or public administrators. Study and information on in-nation and out-nation trust by citizens is lacking and thus the aim of the present study. Previous studies also found that trust process is affected by national, cultural, race, group, gender, age and other issues.

Operational definition: Trust is a positive expectation, confidence and belief about other people, other groups and other nations' attempts, attitudes and behaviours.
Trust discrimination: the difference in trust level for one specific social group versus another social group with which it is naturally coupled (males vs. females; wealthy vs. poor people).

A total of 370 participants from the three countries had participated in this study with a mean age of 33.43 years.

1) In-nation trust: Americans' in-nation trust was significantly smaller than in both Chinese and Canadians.
2) Out-nation trust: Chinese had the highest while Canadian had the lowest with American's was in the middle.
3) In- and out-nation trust: Canadians' and Chinese's in-nation trust was higher than out-nation; Americans' in-nation trust was lower than out-nation trust for Canadians but not Chinese.
4) Variation spread for in-nation trust is larger.

In-nation and out-nation trust has a discrimination tendency and in-nation trust also acts as frame of reference for comparing out-nation trust. Level of trust towards other nations varies across different nations. People trust own and other nation's citizens in different ways and reflect "in-group trust and out-group hate" (Brewer, 1999). However, this was only reflected among Canadians and Chinese but not among the Americans. This study also put forth the reference for trust criteria which is to use one's in-nation trust level as a reference point for out-nation trust level and the level of in- and out-nation trust can determined if a nation is high or low trust nation. When trusting own citizens, it was observed that people tend to have more diverse, variable and different opinion while in trusting other nations' citizens, people tend to have more identical, similar and consistent ideas. Trust discrimination is not a bad thing thoroughly; trust discrimination can be seen as a social inequality that insures survival of the

fittest and can reflect corresponding complex and various characteristics in certain situation or relationships. From this study, it can be inferred that trust is not "stable and unchangeable". It also helped us to realize that trust levels vary across different cultures and various targets and there are more variances in in-nation trust than out-nation trust, consistent with "heterogeneity of in-nation and homogeneity of out-nation".

C-20_Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Introduction to special topic forum. Not so different after all: A cross-discipline view of trust. ***Academy of Management Review, 23 (3),*** **393–404.**

This paper aims to gauge the common elements underlying trust; discuss views scholars hold regarding the dynamic of trust; clarify the multiple ways in which organizational researchers model trust.

- Trust is important because it allow cooperative behaviours; promotes adaptive organizational forms i.e. network relationships; reduces harmful conflict; decrease transaction costs; facilitates rapid formulation of ad hoc work groups and promotes effective responses to crisis.
- Trust is referred to cooperation within groups but there are claims that cooperation may happen due to reasons other than trust.
- There are many definitions on trust, however almost all of them revolves around "confident expectations" and "willingness to be vulnerable"
- The conditions that must exist for trust to arise is "Risk" and "Interdependence"
- Trust is not behaviour or a choice but underlying psychological condition that can cause or result from such actions.
- Trust is not static, it changes over time through few phases: developing, building, declining and resurfacing in long-standing relationships.
- Trust may also be seen as IV (cause); DV (effect); or interaction variable (moderating): Economist often conceptualize trust as IV, the cause for cooperation to take place while sociologist conceptualize trust as DV, the result of attributes of 3rd party; interpersonal behaviour studies see trust as playing a moderating role in shaping causal relationship.
- There are different forms of trust:
  (1) Deterrence-based trust: enable one to believe that another will be trustworthy when cost of breaching trust exceeds potential benefits. Some think that this may not be trust at all but close to lower distrust.
  (2) Calculus-based trust: based on rational decision and economic exchange.
  (3) Relational trust: based on interactions over time between 2 parties and involves emotions.
  (4) Institutional-based trust: can ease the way to formulating calculus-based and relational trust i.e. one's confidence that reputation matters permits relationships to form in the first place.
- Bandwidth of trust is said to be varied based upon the level of tension between acting out of self-interest and acting out of the interest of community. In high PD society, there may be obligations into societal roles that reinforce collective behaviour and relational trust while in low PD societies, mechanisms that support repetitive interactions like stable employment, networks, and law may enable trust.
- It is concluded that context is important to understand trust.

C-21_Chadhuri, A., & Gangadharan, L. (2003). Gender differences in trust and reciprocity. ***Economic Working Papers, Paper posted at ResearchSpace@Auckland.***

This paper used Berg, Dickhaut and McCabe's (1995) investment game to explore gender differences in trust and reciprocity. 100 participants were involved and were required to make both sender and receiver decision.

Results:

(1) At the sender stage, men significantly displayed higher level of trust than women and this result is consistent with some earlier researches. Senders' decision to send the certain amount of money was significantly influenced by what they expected to get back from the paired receiver. When looking in-depth to the motivators of senders' decision, it is concluded that maximizing one's return is the central motivator for one to be generous or non-generous. Majority of the participants were driven by trust or reciprocity than altruism. The explanation for men to be more trusting than women is that women tend to be more risk-averse.
(2) At the receiver stage, women and older participants tend to keep lower proportion of the amount that they received. There is positive reciprocity as well with receivers returning larger amount of money if they receiver larger sum of money and this reciprocity is mostly driven by women as well. In the context where there isn't any risk and the outcome is certain, women are more generous.
(3) For the differences in expectation of men and women, there is no significant difference as to what men expect to get back from the receivers as compared to women. However, men expect 16% more from the receivers than they send back as a receiver while women expect only 5% more. This indicates men expect and behave differently when they are the senders and receivers.

The implication of this study is that male-female pairings with the male as the sender and female as the receiver should exhibit highest levels of trust and reciprocity. Another implication is the awareness to study attitude towards risky decision and riskless decision within the same group of subjects with interpretable changes in behaviours.

C-22_Graham, J. L., & Lam, N. M. (October 2003). The Chinese negotiation. *Harvard Business Review,* 82–91.

Due to cultural differences between western and eastern cultures, they see each other differently. Americans see Chinese as inefficient, indirect, and dishonest while Chinese see Americans as aggressive, impersonal and excitable. This paper discusses on Chinese's characteristics that applies in negotiation process. Firstly, it looks at cultural threads within the Chinese culture which are agrarianism, morality, pictographic language and wariness of foreigners. Agrarianism refers to the practice that emphasizes on group cooperation and harmony. Confucianism serves as the foundation of Chinese education for a long time and it put forth a society organized under benevolence moral code will be prosperous and politically stable. Chinese characters are more of pictorial than sequences of letters hence shape their thinking towards more holistic thinking. Lastly, Chinese trust only ingroup due to the country's long history of wars.

Looking into Chinese negotiation process, there are 8 elements that most people encounter.

(1) Guanxi (Personal connection) – personal connection is fundamental, complex and remains as important social force despite the move towards westernization. Personal connection can be maintained by reciprocity, which may not be immediate.
(2) ZhongJian Ren (Intermediary) – Americans tend to trust until or unless trust is betrayed while Chinese are suspicious and distrust others until it's earned or link

personally and transmitted via guanxi. When things aren't in favour, Chinese are like to remain silent, change questions, respond ambiguously or vaguely positive expressions with subtle negative implications and usually only the intermediary would be able to identify and rectify the situation.

(3) Shehui Dengji (Social status) – casualness is not appreciate among Chinese whereby they value deference to one's superior strongly.
(4) Renji Hexie (Interpersonal Harmony) – friendships and positive feelings holds relationships together, people rely more on good faith,
(5) Zhengti Guannian (Holistic thinking) – think as a whole.
(6) Jiejian (thrifty)
(7) Mianzi (Face/Social Capital) – this is similar to american's concept of dignity and prestige; most important measure of social worth.
(8) Chiku Nailao (Endurance, Relentlessness, Enduring Labour) – Chinese see endurance and hard work as more importance and honourable.

C-23_Tang, S. (2010). The social evolutionary psychology of fear (and trust): Or why is international cooperation difficult? Paper presented at the 2008 ISA Annual Conference.

Fear and trust are essential for interpersonal or intergroup relationships. Social evolutionary psychology of fears discourages our trusting of others but encourages our mistrusting of others, and since cooperation generally requires extensive trust to materialize, thus make international trust even difficult.

(1) Integrated Social Evolutionary Psychology of Fear
-when under uncertainties, a decision made could lead to errors (false positive/negative). Evolution has shaped our brain towards making less costly error, which is to risk for false positive rather than false negative. We tend to over-detect/overreact towards danger when fear, underestimate security hence inclined to mistrust and quick to suspect others.
-the core psychology of fear is then reinforced by other psychological traits, three of them are discussed in this paper i.e. attribution biases; ethnocentrism; and disinclination for systemic thinking.

* Attribution biases contribute to human survival, it reinforces biases for over-detecting/ over-reacting towards possible dangers which thus prolong mind alertness towards dangers.

* Ethnocentrism is driven by the need of survival within groups; belonging to group provides one with sense of belonging and security, thus it favors trust and cooperation among members. One may neglect others' group interest or emphasize malign intention given the fear to fail to safeguard ingroup's interest. Ethnocentrism prevent critical thinking of own behaviours and justify as rational or righteous.

* Disinclination for systematic thinking or inclination for simplistic thinking is seen as a form of "effort-reduction" for mental processes. Simplistic thinking allows us to cope and react to potential danger quickly; when attributing intention of others' behaviours, we tend to then focus on observable part and avoid systematic inquiries; lastly simplistic thinking hinders us from avoiding attribution biases, reducing ethnocentrism and preventing our fear of others.

(2) Evidences for Psych of Fear from psychology literature and international relations
-in short, brain is programmed to pay attention and remain alert towards dangers: our brain has been wired to detect dangers without prior learning (snakes, spiders) and also quick in detecting threatening faces; we have sophisticated yet automatic mechanism to detect untrustworthy behaviour for self-protection; we are usually reluctant to trust others in general

after being cheated or betrayed; negative biases have more potency in arousing our brain and the impact last long; and lastly fear has neural foundation in brain with amygdale which cause flight reaction.
-attribution does interact with ethnocentrism, given that we generally have self-serving/ egoistic bias in attribution, and even attribute positive outcomes by group to our own behaviours.
-attribution does rely on heuristic (simplistic thinking) given it's part of "effort-reducing" mechanism to understand others' intention and motives.
-ethnocentrism is link to simplistic thinking given that heuristic derived from experiences while ethnocentrism is part of identity, which is also experience. Our brain categorizes, and then label categories of individuals or groups, these labels are usually prejudiced or biased. These processes reflect stereotyping, an energy-saving heuristics as well.
-at interpersonal level, we use hostile/sinister attribution bias in which we are paranoiac and attribute hostile intention to others' behaviours, a defense mechanism aroused by fear.
-suspicion entails fear and thus bias us to perceive others as threatening; in IR whereby group survival is at stake, suspicion and fear is reinforced by group dynamics to guard against dangers.
-at intergroup level, seasoned negotiators tend to believe their opponents are more strategic, wicked, obstructive which is congruent with the notion that malign intention are hard to hide.
-the relationship between ethnocentrism and attribution is mediated by fear with group members are deeply concern with ingroup survival, this fear is sufficient to arouse ethnocentric attribution bias (defense mechanism), hence less likely to trust outgroups.
-from real life cases in international politics, attribution biases, ethnocentrism and simplistic thinking interact with each other. Attributing desirable outcomes to our own influences, we not only elevate our ego but also reduce systemic thinking.
-from the IR literatures, the strongest evidence will be decision makers read two different kinds of signals i.e. signals of threat that signal malign intention and signals of reassurance that signal benign intentions. A signal's credibility is in the mind of signal's receiver. The credibility of a state's threat is a function of the multiple of the state's perceived capability, interest and resolve, discounted by the external constraints the state faces (C_T). We tend to discount or even ignore the risk associated with such signals, underestimate the cost of a reassurance signal to the sender, exaggerate the potential benefits that sender can gain form reassurance signal (C_A).

$$C_T = f\left(\frac{\text{a states military capability} \times \text{interest} \times \text{resolve} \times \text{intentions}}{\text{the situational constraint faced by the state as perceived its opponent}}\right)$$

$$C_A = f\left(\frac{\text{the attempt's cost - the attempt's gains, all as perceived by the receiver}}{\text{the situational constraint faced by the initiator as perceived by the receiver}}\right)$$

(3) Implications
-there is a need to look into psychological traits like errors and biases e.g. egocentrism (lack of empathy, loss aversion, counterfactual thinking) which are essential to facilitate survival.
-trust and fear are inseparably but inversely linked; trust as seen as the solution to many social ills but fail to admit fear limits the scope and depth of trust in social life, underestimating the difficulty of overcoming fear and building trust in domestic or international settings. Rational choice-based treatments on trusts cannot possibly capture the whole dynamic of trust but to

bring in psychological approach as well i.e. fear is primary emotion and rational control over fear can overcome fear and thus lead to trust. In international politics, security dilemma/ spiral mechanism has been claimed as the important mechanism of exacerbating tensions and thus leading to conflict among states. Reducing fear is thus conducive to building more trust. In today's defensive realism world, it should be in the states' collective interest if they can manage to fear each other a bit less and trust each other a bit more.

D-1_Yuki, M., Maddux, W. W., Brewer, M. B., & Takemura, K. (2005). Cross-cultural differences in relationship- and group-based trust. *Personality and Social Psychology Bulletin, 31*, 48–62.

East Asians see groups as predominantly relationship-based, based on promotion of cooperative behaviours, maintain relational harmony, maintain knowledge about the complex relational structure because it govern the behaviours, perceived themselves to be personalized and connected with group members, maintain mutually beneficial relationship which then maximise personal interest.

Category- and relationship-based cognition are relational, exist within both East and Western culture. Western culture emphasizes more on categorical distinction between ingroups and outgroups while Eastern culture emphasizes structure of interrelationships within groups.

Definition:
Trust is defined as "an expectation of beneficent treatment from others in uncertain or risky situations". Trust reflects belief that others behave (to benefit oneself) before knowing the actual outcomes of others behaviours. Trust is usually in situation where one can gain at other's expense but choose not to do so.

Depersonalized trust is needed to create and maintain economic exchange, organizations, and social and political institutions. Shared category membership and sharing of interpersonal network facilitated depersonalized trust.

Results from the present study showed that Americans trusts unknown ingroup members significantly more irrespective of indirect relationships. Japanese, on the other hand trusted higher for member with potential relationships compared to outgroup members. This supported the prediction that cross-group relationships increased trust towards strangers among Japanese while American depersonalised trust based more on categorical differentiation. In a non-hypothetical situation (Study 2), Americans trusted outgroup members less than ingroup while Japanese trusted outgroup members with potential interpersonal link more and similar in trust for ingroup and member with potential relationships. Americans ingroup trust correlated with ingroup identification while Japanese trust related to their perceived potential direct or indirect connection with others. This supported the prediction that American depersonalized trust based more on categorical differentiation while Japanese depersonalised trust based more on potential relationships.

D-2_Igarashi, T., Kashima, Y., Kashima, E. S., Farsides, T., Kim, U., Strack, F. et al. (2008). Culture, trust, and social networks. *Asian Journal of Social Psychology, 11*, 88–101.

Definition:
"positive cognitive bias in judgments about others" (Cook & Cooper, 2001).
"A type of expectation about others' behaviours" (Hardin, 2001).
"People's belief in others' good intentions; that is, others' intentions not to harm them, to respect their rights, and to carry our obligation" (Yamagishi, 1998).
The process of perceiving oneself as a member or a social group with a shared social identity produces trust.

There are two types of trust: Generalized trust suggests that most people can be trusted given trustworthiness is human nature. It encourages people to form social relationships and affect one's behaviours when interacting with strangers. It is also associated with a relatively open social network and form social relationships with people in various contexts. Nevertheless, generalized trust may facilitate closed network when one form social relationships with similar others, provide opportunities for friends to form relationships with each other. These closed networks in turn generate high trust. Assurance is trust stems from secure interpersonal relationships, arise from predictability of the other person. This may help in maintaining social relationships by having emotional connection. Relationism may strengthen and maintain the social relationships but may also hinder others to form new relationships.

The study noted it is not easy to interpret cultural effects as they reflect great number of sociocultural differences such as educational system or regional differences or methodological artefacts. It is showed that generalized trust related to network closure.

As for cross-cultural differences, it's showed that in East Asian relationism but not generalized trust is positively related to network homogeneity and this showed make friends with similar others is not as important in East Asian social networks.

In English-speaking countries, generalized trust x relationism suggest that relationism increased homogeneity when trust was high as people work in forming and maintaining social relationships similar others. Generalized trust relate to creation of social opportunities by facilitating social relationships formations and relationism may increased similar others. Contrastingly, East Asian may not need to form relationships but the sense of belonging is strong enough in forming the relationships thus they need to work at retaining relationships. Social institutions provide settings for those who are similar and thus relationism may predict the retention of social relationship.

D-3_Ishii, K. (2007). Do differences in general trust explain cultural differences in dispositionism? *Japanese Psychological Research, 49,* 282–287.

Trust play an important role in life as without trust, one will not enter a social environment or form new relationships. Trust is "expectation of benign or cooperative behaviour based on the goodwill of the partner" and "is based on the inference of the interaction partner's personal traits and intentions" (Yamagishi & Yamagishi, 1994).

It was showed in previous study that Americans are more trustful that Japanese and this was explained in term of opportunity cost, given that opportunities are more readily available in the USA than in Japan. For Americans, it is useful to seek new partner whereas it is important for Japanese to sustain a committed relationship.

It was found that high trusters were more likely than low trusters to show dispositionism (which consist information for one to determine the trustworthiness of others) on dispositional attribution, trait inference and behavioural consistency. It was also suggested that high trusters are wise and refer to a person based on traits and intentions.

Interpretation of dispositionism by general trust does not conflict with independence vs. interdependence or individualism vs. collectivist.

D-4_Zhang, Q. Effect of culture, medium, and task on trust perception. Presented at the ACM Conference on Human Factors in Computing System (2007).

This study aimed to explore cultural differences and understand how culture and communication media interact to influence one's trust perception and trust behaviour. Different cultural pairs i.e. American-American (AA) and Chinese-Chinese (CC), two types of media i.e. video vs. instant messaging (IM), and two types of tasks i.e. negotiation vs. brainstorming were used in this study.

Video reduced performance time compared to IM and CC took longer time to perform tasks. There was neither media effect nor interaction effect of culture and media on trust perception observed. Both groups didn't have higher trust perception in video than IM and AA perceived higher trust than CC in both video and IM condition. Participants have higher perceived trust in video than IM for negotiation but not brainstorming and generally both groups have higher trust in brainstorming than negotiation task.

Contradictory to our hypothesis, AA seemed to treat partners as temporary in-group members thus have higher level of perceived trust than CC, whom may treat partners as out-group members due to the lack of long-term relationships. Results also show video only increase one's trust perception under certain condition i.e. negotiation task that involve conflicts. When no personal relationships are involved, Americans perceived higher trust than Chinese.

D-5_Shin, H. H., & Park, T. H. (2005). Individualism, collectivism and trust: The correlates between trust and cultural value orientations among Australian national public officers. *International Review of Public Administration, 9*, 103–119.

In a World Value Survey by Inglehart (1997), PD but not individualism influenced social trust the most, with higher PD lead people to trust others less. Earlier studies had either emphasizing on just general trust or using trust without special distinction. Western studies usually included voluntary, temporary relationships while non-Western studies focus on non-voluntary or family relationships.

According to Triandis (1995), there is horizontal type of self-construal (consider self similar to others) and vertical self-construal (differentiated self according to social status, ages and genders) and these are differentiating dimensions within Individualism. These dimensions were utilized in Hofstede's (1980) PD dimensions as well with the more self is considered equal to others, the lower is the PD. Triandis and partners added H-V in the construct of I-C and the scale is named INDCOL 95.

D-6_Doney, P. M., Cannon, J. P., & Mullen, M. R. (1998). Understanding the influence of national culture on the development of trust. *Academy of Management Review, 23*, 601–620.

This paper focus on the influence of national culture on the development of trust. There are few approaches to conceptualized trust:
(1)Shapiro et al (1992) proposed that trust has 3 bases: cost & benefits, knowledge-based, common values.
(2) Zucker (1986) suggested that trust based on: process of exchange; characteristics of partner; societal institutions.
(3) Mayer et al. (1995) suggested partner's ability, benevolence and integrity lead to trust.

From the literature search, there are two school of thought, which say (1) trust as a

set of beliefs or expectations and (2) as a willingness to act on those beliefs.

Trust requires risk in making choice and influencing behaviours and it reflects trustor's beliefs, sentiments, or expectations about trustee's trustworthiness. Another perspective emphasizes on trustor's willingness to use trust as basis for behavioural intentions and actual behaviours. Trust is defined in this paper as "willingness to rely on another party and to take action in circumstances where such action makes one vulnerable to the other party".

Culture is "a system of ideas" that provides a "design for living" (Namenwirth & Weber, 1987). "A distinctive, enduring pattern of behaviour and/ or personality characteristics" (Clark, 1990). "A system for creating, sending, storing, and processing information" (Hall & Hall, 1990). "Collective programming of the mind which distinguishes the members of one group from another" (Hofstede, 1984). This study adopts Hill (1997) definition "A system of values and norms that are shared among a group of people and that when taken together constitute a design for living". National culture is a large number of people conditioned by similar background, education, and life experiences.

There are five cognitive trust-building processes from various base disciplines:

a) Calculative (Economic base) – one's calculate costs/ rewards of another party cheating or cooperating in a relationship, based on behavioural control.
b) Prediction (Social base) – depends on one's ability to predict other's behaviour, one's past actions provide reasonable basis for trustor's to predict future behaviour. Knowledge based trust is grounded on this, based on consistency.
c) Intentionality (Social base) – trust is influenced by one's perceived intention of others, trust emerges if one perceived other to be genuinely interested in trustors' welfare and motivated to seek joint gain.
d) Capability (Sociology) – willingness to trust based on one's ability to meet trustor's expectations.
e) Transference (Sociology) – trust transfers from known entity to unknown one.

Within culture, there are domains which are:

a) Relation to self
- Individualistic (Calculative, Capability)
- Collectivistic (Prediction, Intentionality, and Transference)
- Masculinity (Calculative, Capability)
- Femininity (Prediction, Intentionality, Transference)

b) Relation to authority
- High Power Distance (Calculative, Prediction, Capability)
- Low Power Distance (Intentionality, Transference)

c) Relation to risk
- High Uncertainty Avoidance (Prediction, Intentionality, Capability, Transference).
- Low Uncertainty Avoidance (Calculative)

D-7_Hofstede, G. J., Jonker, C. M., Meijer, S., & Verwaart, T. (2006). Modelling trade and trust across cultures. *Proceedings of the 4th International Conference on Trust Management, iTrust, LNCS 3986, ,* 120–134.

This paper was interested to look at the relationship between culture and trust in human trade networks. Culture is not one's personality but attribute of a group that are manifested in the actions of group members.

Castelfranchi and Falcone proposed a model of trust which states: (1) trust is a mental attitude towards others, rely on others (2) beliefs about others' competence and willingness to fulfil some tasks (3) the belief that it is better to rely on trustee (4) trust may be influenced by environmental factors like obstacles, adversities and interferences (5) for decisions to trust, one weights the influences and evaluate the acceptable risk and these all depend on the trustor personality. This model relates to culture as culture background and context influence the decisions of trust.

The rest of the paper discussed on trust and trading.

D-8_Buchan, N., & Croson, R. (2004). The boundaries of trust: Own and others' actions in the US and China. *Journal of Economic Behaviour & Organization, 55,* 485–504.

Literature:

Francis Fukuyama (1995) suggested that high trust corresponds with higher economic wealth in some societies. A country's economic prosperity correlates with the amount of social capital (features of social organizations including trust and trustworthiness that facilitate cooperation and improve efficiency). Fukuyama put forth that US has higher generalized trust and spontaneous sociability which enables corporations to grow in large scale and maintain flexibility as they are open to employ non-kin professionals as compared to Chinese corporations which limit their candidate employment.

This paper look into the how trust and trustworthiness in the US and China changed as social distance varied. This study used investment game to measure trust and trustworthiness in US and China, with the inclusion of social distance. It was hypothesized that:

1. Americans will be more trusting and trustworthy than Chinese.
2. Level of trust and trustworthiness between family and non-family members will drop more among Chinese than Americans.
3. Expectations of trusting actions and trustworthy actions will decrease as social distance increases in US and China.

Analysis found that amount of money sent among Chinese were higher than Americans across social distances and there was s significant effect of country. As social distance increases, amount of money sent decreases. No significant drop in trust between kin and non-kin counterparts among Chinese as expected. Among the Americans, expectations about trust decrease as social distance increases but this was not observed among the Chinese. Americans proposers expected that responders' actions will be sensitive to social distance while Chinese proposers expected that responders' actions will not be.

This study found opposing findings from the previous studies. Chinese reported higher level of generalized trust than Americans, thus failed to demonstrate strict boundary of trust among Chinese. This study is not consistent with the 1990 World Value Survey (WVS) and could be attributed to the nature of the study: general trust question is asked in WVS (how much do you trust other people?) vs. specific behavioural intention is elicited in the present study (how much would you send or return?). However, this study demonstrated that there's sensitivity to social distance in both US and China, with higher trust and trustworthy behaviour were reported with partners who are closer in terms of social distance. Among Americans, responders' expectations about proposers' reactions to social distance are consistent with proposers' actual reactions and vice versa while Chinese proposers and

responders are sensitive to social distance but neither expected each other to be. This suggested that Americans are more likely to project their own behaviour onto others in cooperation while Chinese do not engage in such projections. Moreover, among Chinese, there is a norm not to be indebted (ren qing), thus they may not want to state their expectations out of a desire to avoid ren qing. It could also be due to a lack of optimism or the recent social changes in China had on their social norms.

D-9_Brewer, P. R., Gross, K., Aday, S., & Wilnat, L. (2004). International trust and public opinion about world affairs. *American Journal of Political Science, 48* (1), 93–109.

International trust is how much people can trust other nation to form judgment about world affairs; political trust is government's generalized trust; social trust is trust in general public. Some studies put forth that people tend to use political, social or international trust as heuristic, or information shortcut in forming political judgements and consistent with theories of "low information rationality". Isolationism is the belief of "avoid getting involved in other nation's problems" while internationalism is the belief of "playing active role in world affairs". Learning through education and media exposure influences the citizens' political judgements about world affairs.

Previous studies have contributed in various directions for this study. It was found that collective experiences exert most effects on social and political trust among the younger citizens while the shift in the nature of the international environment (e.g 911 incident) may influence international trust. Domestic politic environment may also affect one's trust, i.e Democrats and liberals may express greater international trust than Republicans and conservatives. Studies also showed that social and political trust have declined over the past four decades among the American public. International trust may shape beliefs about cooperative and militant internationalism and military intervention.

The authors conceptualize international trust as "generalized belief about whether most foreign countries behave in accordance with normative expectations regarding the conduct of nations". The first goal is to demonstrate that Americans holds international trust while second goal is to examine the influences to international trust. A two-wave panel survey and a cross sectional survey was conducted through phone interviews. A model was developed with social trust, political trust, party identification, ideology, age and other demographic variables were allowed to affect international trust and internationalism in wave one, as well as willingness to give humanitarian aid and willingness to use force in wave two. Age has negative effect on international trust reflecting the environment experienced by older Americans may be more likely to foster generalized distrust towards other nations. Both social and political trust has positive effects on international trust and internationalism. In summary, international trust does play a role in shaping orientations toward world affairs and mediated the effect of social and political trust on judgments towards world affairs; and shape support for military interventions. People who trusted other nations were generally less likely to favour actions against war. From this study it was also found that citizens hold stable and coherent beliefs about how much their nation can trust others and simple see it as "dog-eat-dog" world.

D-10_Yamagishi, T., & Yamagishi, M. (1994). Trust and commitment in the United States and Japan. *Motivation and Emotion, 18,* (2), 129–166.

-Earlier researches provided findings that Americans are more trusting than Japanese.
-A distinction was made between trust and confidence with the former indicates goodwill and

benign while the latter refers to competence.
-among Japanese, mutual assurance is based on nature of relationship/ network instead of benevolence.
-Trust and assurance increase predictability in interactions or expectations of social order but is not distinguishable in most trust literature.
-social uncertainty is defined as when one is incapable of correctly detecting others' intentions and others have the incentives to act dishonestly.
-in order to stay in committed relationship, it depends on the balance between transaction and opportunity cost.
-questions arise as to why people don't leave the committed relationship even outside opportunities arise
(1) they may eventually leave but there's time lag
(2) committed partners developed mutual attraction and loyalty
(3) committed relations are usually relation-specific assets, which require assurance of long-lasting relations which are better offer from outsiders; and the existence of warm memory of pleasant past and mutual understanding.
(4) seeking outside opportunities involve social uncertainties.
-reputation acts as extra assurance to deal with social uncertainty; help to move out of committed relationship and to act as sanctioning against dishonest-avoid bad reputation.

-this study involved two types of samples in each country, one is student sample and the other is general population sample. According to conventional view, stability of interpersonal and interorganizational relations is the distinguishing characteristics of Japanese society, thus stronger trust should be nurtured in Japanese society but this is not what was found in the earlier findings. Therefore in this study, distinction between trust and assurance is taken into consideration. Trust requires social uncertainty while assurance requires the lack of it. Results found that Japanese see more utility in dealing with people through relationships; Americans scored higher in general trust than Japanese but no difference in regard to Caution Scale which measure how strongly people feel caution is needed in dealing with others. Americans were also found to consider reputation and honesty more valid and important than Japanese. Knowledge-based trust is simply a by-product of close and stable relations, on surface committed relations seem to nurture relations but knowledge-based trust is conceptually distinct from assurance.

E-1_Dake, D. (1991). Orienting dispositions in the perception of risk: An analysis of contemporary worldviews and cultural biases. *Journal of Cross-Cultural Psychology, 22(1),* 61-82.

The authors argue that mental models of risk are not just matters of individual cognition. They correspond also to cultural "worldviews" that entail deeply held beliefs and values regarding society. Individuals choose what to fear and how much to fear it in order to support their way of life. They argue that selective attention to risks is best understood in terms of cultural biases and social relations.
Cultural biases = shared values and beliefs;
Social relations = one of 5 patterns of interpersonal relationships: hierarchicial, individualist, egalitarian, fatalist, and hermit.
"Ways of life" = socially viable combinations of cultural biases and social relations.

They discuss how the perception of risk may be best understood in terms of "orienting dispositions" that are comprised of personality and public policy preferences on one hand, and aspects of social structure and cultural biases on the other.

Hypotheses:
From theory about these different "ways of life" they formulated the following hypotheses:

General Hypothesis: Societal concerns are predictable given the "cultural biases" of participants.
Hypothesis 1: hierarchists should express great concern about behaviors such as demonstrations and disobedience because these acts are disrespectful to the authority they try to maintain. Egalitarians should show less concern about social deviance.
Hypothesis 2: Individualists will have more concern about social deviance (a stance similar to hierarchists, but for different reasons).
Hypothesis 3: Individualists should be more concerned than hierarchists about issues such as the stability of the investment climate, national debt, and government overregulation.
Hypothesis 4: Egalitarians should show much more concern about environmental and technological dangers than hierarchists and individualists.

Method:
Public sample, full day assessments assessing perceptions of technologies, preferences for societal decision approaches and societal risk policy, confidence in institutions, socio-technological and political orientations, personal values, environmental dispositions, self-descriptions, and personal background.

Results**:**
Found support for hypothesis that societal concerns are predictable given the cultural biases of participants.
Examples of what was found: Egalitarianism correlated positively with all 36 societal concerns (including threat of nuclear war, environmental pollution, dangers associated with technology, decline in moral values, etc.) Suggest that egalitarians are more risk averse across a wide variety of issues than other cultures. Also, hierarchists and individualists show far less concern than egalitarians about technological and environmental dangers.

E-2_Hsee, C., & Weber, E. (1999). Cross-national differences in risk preference and lay predictions. *Journal of Behavioral Decision Making, 12,* 165-179.

This research investigated whether there are systematic cross-national differences in risk preference. Specifically, they were interested in differences between Americans and Chinese.

They argue that by knowing this, people involved in foreign affairs and international business can more accurately predict risk preferences, and therefore the choices, of their counterparts in other countries.

Study 1: This study had two purposes: to see whether there were systematic differences in risk preference b/t Americans and Chinese, and to investigate the predictions of people in one country for the risk preferences of people in another country. Risk preferences were inferred through the choices people make (as assessed via questionnaire).

The results suggest that Chinese are significantly more risk seeking than the Americans. However, both nationals predicted the opposite. The Chinese and the Americans both predicted that Americans would be more risk seeking. The researchers attribute this to stereotypical images that people hold about people from different countries. There stereotype is generally that Americans are risk-seeking and Chinese are not.

Study 2: The researchers compared Americans' and Chinese risk preferences in investment, medical, and academic decisions. They found that Chinese were only more risk seeking in the investment domain, not in any of the others. They explain these results in terms of a "cushion hypothesis." In times of financial need, people from collectivistic cultures can turn to their social network. Therefore, the adverse outcomes of a risk financial option may be less severe to Chinese than to Americans. This hypothesis is termed a "cushion" hypothesis because the social network in a collectivistic culture can serve as a cushion in case one of its members "fell."

E-3_Kleinhesselink, R. & Rosa, E. (1991). Cognitive representation of risk perceptions: A comparison of Japan and United States. *Journal of Cross-Cultural Psychology, 22(1),* 11-28.

The authors argue that perceptions of risk will vary systematically across different cultures.

Their study compared risk perceptions of Japanese and American citizens. Subjects completed a risk questionnaire that has been used in past research. It tapes 9 dimensions of risk (using 70 items): new-old, known-unknown to science, known-unknown to the individual, voluntary-involuntary, controllable-uncontrollable, dread-calm, and catastrophic-not catastrophic.

Results: Risk perceptions of the Japanese and the Americans were similar in some aspects and different in others. The similarities were in how both groups structured their cognitive representations of risk perceptions. They were structured by the same two higher order characteristics; dread risk and unknown risk. The cultures were also similar in the way in which dread was assigned to their perceptions of environmental hazards. The most dreaded activity in both cultures was nuclear war.

Significant differences were found in ratings of the risk dimensions associated with the Dread Risk factor and the Unknown Risk factor. Japanese tended to rate the technological risks associated with nuclear power as older risks and risks for which they had individual or scientific knowledge. Americans, on the other hand, rated these as newer risks and risks for which they had less individual or scientific knowledge.

Finally, the Japanese tended to view the 70 risks in the survey as less menacing along the dimensions associated with the Unknown risk factor. However, they rated more of the 70 risks as uncontrollable, dreaded, and catastrophic.

F-1_DeLeeuw, K. E., & Mayer, R. E. (2008). A comparison of three measures of cognitive load: Evidence for separable measures of intrinsic, extraneous, and germane load. *Journal of Educational Psychology, 100,* 223–234.

Triarchic Theory of Cognitive Load:

- There are 3 kinds of cognitive processing during learning that contribute to cognitive load:
  (1) Extraneous processing – engage in cognitive processing that does not support learning objective. Redundant vs. Non-redundant
  (2) Intrinsic processing – cognitive processing essential for comprehending material and depends on complexity of material. Low complexity vs. High complexity
  (3) Germane processing – engages in deep cognitive processing like mentally organizing material and relating to prior knowledge. High-transfer vs. Low-transfer

Unitary Theory of Cognitive Load:

- Each of the 3 measures of cognitive load (response time, effort rating, & difficulty rating) should be sensitive to each of the 3 types of cognitive load.

This study examined sensitivity of response time to secondary task and effort rating during learning and difficulty ratings after learning. Subsequently, this study intended to determine if these three measures of cognitive load tap the same underlying construct.

Experiment 1: 56 college students aged between 18-22yo. Task 1 is a narrated animation of electric motors functions while secondary task was to identify when the background colour gradually changed from pink to black. Each of the measures was sensitively to one type of cognitive load. Response time was sensitive to redundancy, effort ratings were sensitive to complexity and difficulty ratings were sensitive to transfer performance.

Experiment 2: measures of cognitive load may act as distraction than cognitive load. Hence this experiment provided pre-test Qs to learners asking them to answer the Qs after learning hoping that this would provide more valid measures of cognitive load. 99 college students aged 17-22 years old.

It was discussed that different measures of cognitive load did not correlated highly among each other. This study support for the dissociation among three types of cognitive load and thus to measure cognitive load, it may be effective to measure the types.

F-2_Schnotz, W., & Kurschner, C. (2007). A reconsideration of cognitive load theory. *Educational Psychology Review, 19,* 469–508.

History:

CLT started in late 1970s and focus on students' learning to solve problems. CL is any demands on working memory storage and processing of information and there is difference between intrinsic load (nature of task) and extraneous load (format of instruction). Split-attention effect occurs when attention split between various sources of visual information to be integrated for comprehension. Extraneous load can be reduced by integrating information as much as possible. Modality effect is the information that has been integrated for comprehension while only visual information requires split attention. Intrinsic load is assumed to be fixed while extraneous load can be manipulated to reduce CL. Germane

load is due to the development of cognitive schemata which requires extra working memory capacity. Instructional types should decrease extraneous load with increasing germane load provided total CL does not overburden learners. Redundancy effects indicate students who were not presented with redundant information perform better. When learners can comprehend a subject matter based on one source, the redundant information needs extra CL without benefiting to comprehension. Split-attention effect, modality effect and worked-examples effect vary according to learner's expertise and knowledge and this is termed expertise-reversal effect.

Basic assumptions of CLT:

The fundamental claim is "in order to be effective, instruction has to be adapted to the structure and functioning of the learners' cognitive architecture".

- Assumes that there are multiple cognitive stores, with limited working memory and extensive LT memory. The new evolution-oriented version assumes working memory limitations are essential as it is more efficient than larger one.
- Information is organized as cognitive schemata in LT memory.
- Cognitive process that requires conscious control adds on to cognitive load.
- Intrinsic, extraneous and germane load are additive.
- Learning reduces CL, understanding occurs when all elements are processed, and instructional guidance can substitute missing schemata due to the lack of prior knowledge.

Intrinsic vs. Extraneous

- To be effective, instruction needs to match learning styles and expertise. When these are aligned, learner only deal with intrinsic load but if it's not, learner has to deal with extraneous load.
- Extraneous load can be due to high interactivity and maintenance between relevant information, interactivity between irrelevant information and waste of time and effort.
- Extraneous load can be reduced by instructional design while intrinsic load can be adapted to expertise of the learner.

Germane Load:

- It requires working memory capacity, beneficial for learning. It is cognitive load due to cognitive activities in working memory that aim at intentional learning and go beyond simple task performance. It is cognitive load of certain specific cognitive activities that are performed in addition to ordinary performance of learning tasks and aim at further improvement of learning.
- It is usually constrained by working memory capacity, intrinsic load and learner's motivation.

Measuring CL:

- Subjective ratings: Assumption that individuals are able to inspect their own cognitive processes and report difficulty and invested mental effort.
- Physiological measures: changes in cognitive reflect changes in physiological states like galvanic skin response, pupillary dilation or heart rate variability. Diameter of pupil increases with increasing load.
- Performance-based measures: Working memory is limited but can be flexibly allocated to current requirements (primary & secondary tasks)
- Limitations of measurements: The measurements above do not distinguish intrinsic,

extraneous and germane load. CLT is a conceptual framework and should not be fruitful for empirical research or research-based practice.

The rest of the articles discussed on cognitive load with zone proximal learning and how it contributes to learning.

Traditional vs. alternative views of CLT:

- Traditional theory assumes intrinsic load is fixed, minimize extraneous load but maximize germane load. It suggests germane should be as high as possible.
- Contrarily, intrinsic load is fixed for specific task, can be manipulated by selecting adequate learning tasks, fits the learner's expertise. Whether it is intrinsic or extraneous load depends learner's expertise and educational objectives. Germane load is subject to various constraints, which need to be taken into consideration in instructional design.

F-3_Rikers, R. M. J. P. (2006). A critical reflection on emerging topics in cognitive load research. *Applied Cognitive Psychology, 20*, 359–364.

-The important principle in many studies conducted related to CL is to optimized learner's germane load and minimized their extraneous load.
-2 characteristics of an effective learning environment: design of the learning environment (presentation of materials and learner's interaction with environment and extraneous CL) and background of learners (prior knowledge, motivation and age).

Study1 – examine effectiveness of reducing task complexity. Results showed students with low ability benefited more from isolated or part task strategy while students with high ability benefited more from integrated or whole task strategy. This is a nice illustration of interaction of instructional method with ability level on performance. There were unexpected findings where both students with low and high ability had lower CL in the part-task condition. Time used may provide us with interesting clues and should be recorded.

Study 2 – examine the influence of different problem formats, presentation sequence, ability levels on achievement and transfer test and on CL ratings. Higher ability students outperformed but CL ratings did not differ. Students showed relatively low gains, could be due to high prior knowledge or lack of motivation. In future, CL and time used can be measured during test.

Study 3 – investigates the influence of instructional design on younger and older adults. No disproportional advantage was observed. Although younger participants outperformed older participants but no difference in CL was found. This could be due to response bias of elderly or difference in metacognitive processes or larger within-group variation among older adults.

Study 4 – examine effects of 2 supports: surface feature and deep structure feature. Learning was relatively low and did not differ across different conditions. It could be due to complexity of learning materials hence increased in intrinsic CL. Since complexity of materials and intrinsic CL is also determined by prior knowledge, students may not have benefitted by both types of support. This design also forces learners to integrate information from various sources which translate into extraneous CL.

Study 5 – describes an alternative method for diagnosing acquisition of domain-specific

knowledge and application of this method for optimizing CL by tailoring instructions. Adding CL ratings to rapid verification tests (alternative method) did not lead to improvement could be due to lack of power in this study.

Study 6 – proposed a 2-stage approach to deal with problem whereby intrinsic CL is still too high for learning even after removing all extraneous load. First stage is reducing intrinsic CL by manipulating element interactivity that frees up cognitive resources. Second stage involves allocating these resources to processes that induce germane CL, which lead to improved performance. Alternatively, instead of reducing intrinsic CL by manipulating tasks, they can improve expertise by teaching strategies to tackle task, which can reduce intrinsic CL without adjusting the original problem.

F-4_Paas, F., Tuovinen, J. E., Tabbers, H., & Van Gervem P. W. M. (2003). Cognitive load measurement as a means to advanced cognitive load theory. *Educational Psychologist, 38*, 63–71.

Construct of CL:

- Defined as multidimensional construct that represents the loads of performing a task that imposes on one's cognitive systems.
- The construct has causal dimensions reflecting interaction between task and learner characteristics and assessment dimension reflecting measureable concepts of mental load, mental effort and performance.
- Mental load is aspect of cognitive load that originates from the interaction between task and learner's characteristics.
- Mental effort is the cognitive capacity to accommodate task demands.
- Performance is learner's achievement.

Measurement of CL:

- Assess CL by measuring mental load, mental effort and performance.
- Analytical methods estimates mental load and collect subjective data with techniques like expert opinion and analytical data such as mathematical models and task analysis.
- Empirical methods estimates mental effort and performance, gather subjective data using rating scales, performance data using primary and secondary task, and psychophysiological data.

A factor that is neglected in the CL measurement and calculation of mental efficiency is the time spent on task.

F-5_Fish, S. C., & Granholm, E. (2008). Easier tasks can have higher processing loads: Task difficulty and cognitive resource limitations in schizophrenia. *Journal of Abnormal Psychology, 117(2)*, 355–363.

-Resource limitations hypothesis: predicts global deficits on cognitive tasks regardless of the cognitive abilities that are supposedly tapped by the tasks in high processing load condition.

-It is typically claimed that when tasks are matched for ability of healthy controls or tasks that show lower performance in patients are in fact easier for healthy controls, this reflects differences in processing resource load. However, when processing load increases, one may then allocate higher resources in performing the task which thus able to maintain task performance until the resources are depleted (Gophor & Donchin, 1986).

-An objective measure of task processing load is through pupillary responses. Few studies have shown that pupil size increased in response to increased processing demands regardless of the cognitive domains involved. This indicates papillary response is probably a direct response to processing resource allocation instead of task processing load.

-it is important to distinguish between generalized cognitive deficits associated with resource limitations from that off associated with task psychometric confounds.

-The rest of the paper reported on the study whereby pupillary responses were recorded as an indication of processing resource allocation during a digit span distractibility task (DSDT) among middle- to old-aged individuals with schizophrenia and middle-aged persons without any psychiatric conditions. This study looked into whether task difficulty which was translated into quality of performance and processing resource load which was determined by pupillary responses are comparable in distraction and neutral conditions. The findings shown that more difficult tasks do not always have higher discriminating power (comparable between easier and difficult tasks) and it is not an accurate index of processing load. Pupillary responses increased with increased memory demands and were significantly greater in more complex condition whereas task difficulty did not reflect this pattern of processing load differences.

F-6_Paas, F., van Gog, T., & Sweller, J. (2010). Cognitive load theory: New conceptualizations, specifications, and integrated research perspectives. *Educational Psychological Review, 22*, 115–121.

This special issue discusses new conceptualizations and integrated research perspectives on cognitive load theory (includes the review of three articles in this issue).

-CLT is concerning the learning of complex cognitive tasks, whereby "learners are often overwhelmed by the number of interactive information elements that need to be processed simultaneously before meaningful learning can commence".

-CLT uses knowledge of human cognitive structure to form instructional techniques, which consist of long-term memory and working memory. LTM contains knowledge that allows problem-solving. Hence the extent of knowledge in LTM determines performance levels.

-CLT assumes that most knowledge need not have to be gained from personal experience but can be learn from others. CL theorists looked into how knowledge should be structured when it is presented to learners, and which activities learners should engage when acquiring information. It also depends on WM because it processes information before it is stored in LTM and WM is limited in duration and capacity.

-CLT-based instruction aims to ensure one's WM is not overloaded with information and to ensure one acquires sufficient information in LTM to be able to function without debilitating limitations of WM when dealing with novel information.

-CLT identifies 3 categories: intrinsic (complexity of the materials); germane (WM resources required to deal with intrinsic CL); and extraneous (caused by poorly designed instructional procedures that interfere with schema acquisition).

-From instructional design point of view, extraneous and germane CL are communicating

vessels whereby reduction in extraneous CL can free cognitive resources for an increase in germane load.

-To manage and facilitate WM and LTM in relation to learning, extraneous load must be eliminate first (e.g. studying effective/worked solution to construct similar schema). Intrinsic load must also be managed in a way that simultaneous processing of germane load is possible.

-1st article in this issue by Sweller: redefines constructs of germane and extraneous load by relating them to interactivity and analyzes the consequences of explaining the various CL in terms of elements interactivity, which was originally only used a defining characteristic of intrinsic CL. Thus, extraneous load is said to be caused by element interactivity not essential to task at hand, while germane load is said to consist of WM resources used to deal with element interactivity that contributes to learning. Sweller argues that this new conceptualizations are advantages from theoretical and practical point of view. Theoretically, relations between intrinsic, extraneous and germane CL have a rational foundation while practically, this could lead to new instructional procedures.

-2nd article by Janssen et al: recognizes collaborative learning as a way to overcome individual WM limitations. CL requires in carrying out a learning task can be distributed across collaborating WM, thus reduces the risk of overloading and creates larger reservoir of cognitive resources.

-3rd article by van Gog & Rummer: provides review/comparison of learning from worked example and modelling examples. Worked examples are investigated in CL research and require one to study worked-out solutions in written format while modelling examples are investigated in social-cognitive research and requires one to observe someone performing a task and this model may be behaving didactically or naturally. Studies on modelling examples also addressed effects of model's characteristics such as age, gender and type of performance which are not relevant for didactical, written based worked examples.

-4th article by Kalyuga: suggests that CLT could be improved by emphasizing on generalized knowledge structures as opposed to domain-specific knowledge. This article focus on domain-specific knowledge occupying medium level of generality between generic knowledge and routine low-level knowledge structures directly associated with specific problem situation. Generalized knowledge could be important for developing flexible expertise.

F-7_Johnston, J. H., Fiore, S. M., Paris, C., & Smith, C. A. P. (in press). Application of cognitive load theory to developing a measure of team decision efficiency. *Military Psychology.*

-Tactical Decision Making Under Stress (TADMUS) program demonstrated that effective team training and aiding through Decision Support System (which was based on cognitive and team task analyses) resulted in better performance with less mental effort.

-Team Decision Efficiency (TDE) measure is part of a theoretical framework developed in the area of team cognition to understand process and performance at the inter-intra-individual level.

-CLT articulates how cognitive processes in working memory interact with LT memory and learning content and performance.

The present study:
-this study aimed to examine the TDE measure in measuring whether teams with training and Decision Support System would perform better than control condition.
-participants were divided into teams and in two conditions (Training/DSS vs. Control). The objective of the task was to perform ship's air defense warfare, detect, interact, passed tactical information ad lastly execute actions plan. Teams' communications transcripts were used to judge on their performance while accuracy and timing in reporting the detection of aircraft and aircraft type and also in executing actions were all evaluated. Mental effort was assessed by rating participants' perceived level of mental effort
-results showed correlation between training and team performance behaviours and DSS/training did had impact on workload/performance and efficiency. Training/DSS teams performed with more deliberation but better performance.
-TDE scores suggested that training/DSS lead to less cognitive demand and better performance.
-considering individual measures of workload across multiple scenarios with team performance enable us to illustrate how interventions reduce workload.

F-8_Yi-Ching, L., John, L. D., & Linda, N. B. (2009). The interaction of cognitive load and attention-directing cues in driving. *Human Factors, 51*(3), 271–280. DOI:10.1177/0018720809337814.

Introduction

Strayer et al (2003) concluded that actively engaging in secondary, non-driving tasks led to withdrawal of attention creating inattention blindness. Drivers with high CL had trouble recalling prior encounters with roadway objects. These indicated CL impairs one's distribution of attention, at least for drivers.

Previous studies showed that cues that indicated likely locations of target enhanced speed and accuracy of detection, endogenous cues elicit voluntary orientation of attention while exogenous cues elicit reflexive orientation of attention. Invalid cues caused longer reaction times (RT) and lower accuracy.

Muller and Rabbitt (1989) found task-irrelevant and uninformative flashes interrupted the endogenous orienting to a greater degree than the exogenous. Lavie's load theory of attention suggests when the load is high, little or none of the remaining capacity can be distributed to process irrelevant distractors.

Current study

To further understand the underlying mechanisms that influence attentional control: endogenous or exogenous. This study adapted Posner's paradigm to driving and participants were to search for pedestrians while interacting with a simulated in-vehicle system. Eye-movements were recorded, they were asked to monitor the lead vehicle and to brake when necessary. Changes of roadside objects such as billboards may capture attentions involuntarily. Secondary tasks required participants to listen to and respond to auditory messages which are related to information in categorising certain restaurants. When drivers detected pedestrians, they have to respond by pressing right or left button on the steering according to the pedestrians' shirt's colour.

Discussion

Results show CL delayed drivers' responses while irrelevant exogenous cues decreased the duration of pedestrian fixations. CL drivers were less susceptible to irrelevant exogenous cues contrasting to as expected. This is consistent with Lavie's load theory of attention where higher CL diminished the interference effect of irrelevant scene clutter. Drivers had more fixations, higher accuracy and shorter RTs when responding to valid cues. Responses were delayed when drivers were actively engaged in secondary task regardless of the validity of cues. CL diminished participants' sensitivity in detecting vehicle changes. The influence of exogenous cues is stronger when endogenous control is less beneficial. Irrelevant exogenous stimuli and level of CL combined to influence endogenous and exogenous orienting of attention in driving. Interacting with in-vehicle devices can delay drivers' responses to roadway events while visually attractive scenes and CL shorten fixations to driving-related objects.

F-9_Katsikopoulos, K. V., Duse-Anthony, Y., Fisher, D. L., & Duffy, S. A. (2000). The framing of drivers' route choices when travel time information is provided under varying degrees of cognitive load. *Human factors, 42*(3), 470–481.

Current Study

This study looked into drivers' route choice in 4 directions. (1) how travel time variability is presented (range of travel time, presented in such limited viewing time) (2) effects of average and variability of travel time. When choices lead to equal gain, risk-aversive behaviour is displayed while when choices lead to an equal loss, risk-seeking behaviour is displayed. (3) To examine if effect of range is not only due to framing but also the cost of being late. (4) To test whether participants make the similar choices during the driving simulator experiment and paper-and-pencil experiment.

Experiment 1:

A paper-and-pencil test to verify if drivers tend to minimize their average time, prefer smaller range (choices lead to gain) and greater range (choices lead to losses) and the influences of cost of being late. Participants were given route choices (main route with travel time of 100 minutes and alternative routes with ranges of travel time and under different condition such as having meeting or ahead of schedule).

It was found that no significant effects on conditions whereby they are ahead or on time. The diversion of choices (chose alternative instead of main) was less frequent when they had meeting, when range or average time increased. Effect of range depended on average time. Effect of average time interacted with meeting and ahead of time condition. When choices lead to losses, neither risk-aversive nor seeking behaviours were found. Risk-aversive is higher when cost of being late is high. Drivers tend to have bias against alternative route and are less preferred.

Experiment 2:

Driving simulator is used and it is hypothesized that increased in CL would reduce the importance of certain route attributes, given that they may only have enough reserve capacity to compute only average travel time for example. Average time and range had significant effects. Diversion of choices increased as range increased and when the average time is longer than the main route but range had no effects when average time was shorter or equal to main route. Range had large effects on paper-and-pencil test but not driving simulation. Diversion of choices increased with average time greater than main route demonstrating risk-seeking behaviours when choices lead to losses but the opposite was not found, probably due

to ceiling effect. Effects of CL were investigated with participants considered variability less often in driving simulation, which is very much similar to an actual driving condition.

F-10_Burgess, D. J. (2010). Are providers more likely to contribute to healthcare disparities under high levels of cognitive load? How features of the healthcare setting may lead to biases in medical decision making. *Medical Decision Making, 30,* 246–257. DOI: 10.1177/0272989X09341751

This study discusses how features of healthcare settings that contribute to CL affect healthcare disparities in terms of race/ethnicity. CL is conceptualized as "the amount of mental activity imposed on working memory, which may come from competing mental tasks, environmental factors, our own psychological or physiological state (e.g. fatigue), as well as from the demands inherent in the task at hand (i.e., intrinsic CL)". It is best conceptualised as a quantity that varies rather than a state that is either present or absent.

The framework is grounded on dual process models of social cognition, whereby controlled processes involve intentional, conscious, and effortful thought, high CL can interrupt, impair or prevent controlled processes by "taking up" necessary cognitive resources; automatic processes are effortless, occur outside consciousness and without intent, not disrupted under high CL.

H1: Providers with high CL make poorer medical decisions and poorer care due to low controlled processing.
-Medicinal practices often involve mental processes which mostly have become automatized with exposures to trainings and experiences. But under high CL, ability to switch from controlled to automatic is expected to compromised.

H2: Under high CL, providers' medical decisions and interpersonal behaviours are likely to be influenced by racial stereotypes, leading to poorer processes and outcomes for minorities.
-Salient characteristics such as age, gender, race may activate stereotypes that lead to biases.
-Stereotypes can be automatic processes but can be corrected via controlled processes when there are sufficient of cognitive resources.
-Previous researches used experimental designs and found that under high CL, decisions made are prone to biases. A chart review based on 1236 patients found that during high peak period (high CL), females were prone to be diagnosed as having depression as it's a stereotypically female's condition.
-Neuroimaging studies have shown that right lateral prefrontal cortex played a part in controlled processing while amygdale is involved in responses to perceived threat, in this case, the responses towards African American as compared to White for example.
-High CL is predicted to lead to poorer ability in controlling inhibit stereotypic responses.

H3: Certain characteristics of healthcare settings affect the level of CL e.g. competing demands, fatigue, stress, anxiety, distress, time pressure, high proportion of trainees, greater medical structures and practices, and patients of different race or ethnicity.
-Competing demands include tasks other than clinical related such as communicating with patients with low language proficiency or cognitive capacity.
-Fatigue, distress, anxiety etc deplete working memory and diminish mental processing ability and impaired providers' performance.
-Low perceived control at workplace or low perceived org. support could lead to work stress in providers.

-Providers with comparatively low expertise tend to rely on stereotyping more due to the less cognitive capacity to integrate individual-level information.
-Technology systems are said to contribute to CL before their use become automatized, which minimize provider's CL.
-Interactions with different races lead to increased anxiety and self-regulatory behaviours such as regulating one's thoughts.

H4: Minority patients are disproportionately likely to be treated by providers with high CL and hence expected poorer care and lower controlled processing and influence of racial stereotypes.
-There were evidences of minorities are more likely to be treated by providers whom experience high CL, lower job satisfaction and work control, lack of technologies, less likely to be treated by providers with high expertise, and by international medical graduates who are likely to face perceived discrimination, cultural differences and lack of social support in workplace.

Implications:
-Many vignette studies failed to find strong main effects of race due to the failure to account for providers' CL as in reality.

F-11_Fitousi, D., & Wenger, M. J. (2011). Processing capacity under perceptual and cognitive load: A closer look at load theory. *Journal of Experimental Psychology: Human Perception and Performance, 37* (3), 781–798.

-Perceptual load: modulated by factors such as size
-cognitive load: modulated by factors such as demands on working memory.
-both have independent and opposite effects on allocation of attention and efficiency of selective attention.

Perceptual load and processing capacity:
-high load drains attention while low perceptual load frees capacity, hence distractor processing is eliminated under high load.
-Miller (1991) put forth argument that interference did not result from exhaustion of attentional resources but imbalance in processing speed between target and distractor.
-in an alternative claim, Eltiti et al. (2005) suggested that perceptual load hampers the quality of input (data limitation i.e. made distractor more salient) rather than affecting the processing of input (resource limitation)
-variations in perceptual load may affect the informational value of stimulus instead of allocation of attentional resources.

Cognitive load and processing capacity:
-central assumption is demands placed on working memory lead to less capacity in dealing with distracters and larger interference is expected under high CL.
-increased in CL results in reduced distractor inhibition due to narrowing of attention to target area, thus effects of CL are not related to changes in the allocation of resources but decrease in one's ability to inhibit their responses to distracters under high CL.

Current study was being carried in two experiments to examine on 6 hypotheses. H1 looked at the effects of mean RTs; H2 looked at interaction between processing capacity and selective attention; H3 looked at the perceptual and cognitive load with processing capacity

rather than on informational value of stimulus or salience of targets; H4 looked into the effects of perceptual and cognitive load on decisional processes.

Experiment 1:
-tested effects of perceptual load via measures of performance (mean RT) and SDT measures to look at sensitivity and response bias.
-it was found there are reliable interaction between congruency and load and was supported at group level analysis.
-increased in load lead to reductions in capacity and congruency leading to increases in capacity.
-low perceptual load showed reliable change in processing capacity while high perceptual load exhibited smaller change. Effect of congruency was greater at low levels of load. According to load theory, there should be no effect of congruency with this set of stimuli under high perceptual load.
-any benefits due to interference are greater under low perceptual load and secondly load produced benefits in processing under high load while extracting costs under low load.
-perceptual load appears to affect the saliency of target.

Experiment 2:
-congruency effect larger under high CL.
-reliable differences in capacity in both low and high CL with proportional difference being largest in high CL.
-there was an increase in processing capacity due to congruency.
-larger decreases in processing capacity under high CL.
-changes in bias are not predicted by the load theory.
-there were interactions of CL and congruency with better selective attention under low CL.
-congruency effects on capacity were observable but less pronounced at low CL.
-CL did not affect sensitivity but congruency did with no interaction of load and congruency.

Discussion:
-better selective attention under low perceptual load and improved selectivity under low CL.
-support for load theory was obtained at aggregate level for the mean RT (speed of processing) and hazard function (capacity)
-reliable changes were found in sensitivity and response bias due to perceptual load and only changes in response bias due to CL and congruency. Manipulation of load produced decrements in sensitivity and shifts in response bias.
-perceptual load does not exclusively influence the level of processing capacity, but also affects the discriminability of the target. This outcome is not predicted by load theory but consistent with Tsal and Benoni's dilution account.

F-12_Milkman, K. L., Chugh, D., & Bazerman, M. H. (2009). How can decision making be improved? *Perspectives on Psychological Science, 4,* 379–383.

-biases in judgment lead to massive costs resulted from suboptimal decision making.
-decisions that are biased are due to too much information, time pressure, simultaneous choice, and some other constraints.
-Stanovich and West's (2000) distinction between System 1 and System 2 cognitive functioning provides a useful framework about effective strategies to improve decision making:
System 1 → intuitive system, fast, automatic, effortless, implicit and emotional

System 2 → reasoning, slower, conscious, effortful, explicit and logical

-people rely on System 1 when they lack information, failed to notice available information, face time and cost constraints, maintain little information in their usable memory.
-in some situations, System 1 leads to superior decision making by improving efficiency without sacrificing quality while System 2 thinking lead to regret when making emotional decision. Unconscious thoughts have been shown to lead to better decisions than conscious thoughts in complex decision-making.
-to move from System 1 to System 2, (1) intuition should be replaced with analytic processes e.g. constructing a linear model or formula; (2) an outsider's perspectives should be taken into account that can reduce one's overconfidence; (3) consider the opposite of the decision they are about to make
-in a context that promotes System 2 thinking has potential to reduce common biases from System 1 thinking.
-First impulses tend to be more emotional instead of logical while willpower is weakened when people are placed under extreme CL or inexperienced in the domain.
-another strategy to ensure System 1 can lead to good results is to change the environment instead of changing to System 2.

F-13_De Neys, Wim., & Schaeken, W. (2007). When people are more logical under cognitive load: Dual task impact on scalar implicature. *Experimental Psychology, 54*(2), 128–133.

Two school of thought: (1) neo-Gricean claims that pragmatic interpretation is default in a communicative setting while (2) relevance theory assumes implicatures are not default but governed by effects and efforts.

The present study used dual-task approach to look at correlations between automaticity and cognitive resources. Relevance theory predicts that pragmatism decreases under CL while neo-Gricean view predicts that CL boosts pragmatic interpretation. Filler sentences, under informative sentences and secondary task of dot memory tasks are presented. Relevance theory view of scalar implicature was supported here with pragmatic inferences were decreased under high CL, people became more "logical" under CL. This also indicated that scalar implicatures are not automatic but are effortful and requires cognitive processing.

F-14_Roßnagel, C. S. (2004). Lost in thought: Cognitive load and the processing of addressees' feedback in verbal communication. *Experimental Psychology, 51*(3), 191–200.

The aim of the study is to look into CL effect in social settings whereby feedback from addressee was included. In previous studies on CL on speech, generalization to perspective taking is limited because communication was stripped of its social context. The question posted in the study was whether CL effect will be found even with feedback available. Two types of feedback were included in this study: unspecific feedback where speaker have to stop the current message production, interpret the feedback in order to adjust utterances and is usually skipped under high CL while specific feedback provide hints of how to adjust utterances so that perspective-taking can occur under CL.

Experiment 1 looked at fluctuations in CL as a result of complexity in assembly of a model. Participants were required learn the assembly of machine model and then gave instructions to a confederate, participants were have to complete a secondary task simultaneously. Results

found that more detailed instructions were given and less error were made for simple steps assembly than complex steps. This indicated that giving instructions for complex steps required more cognitive capacity, thus details of descriptions were low and in nonspecific manner. Under low load (simple steps), more cognitive capacity could be spared to monitor and correct the utterances.

Experiment 2 looked at how CL affects the speakers' processing of feedback from the addressee. Participants received both specific and unspecific feedback and during simple and complex steps instructions. It was found that under low CL, participants' responses were according to feedback while under high load, responses were affected by CL. Expansions of responses were less under high load while repetitions predominated given that repeating utterances was less cognitively demanding.

CL was not induced by external constraints like time or demands from secondary tasks, instead it followed from inherent properties of the model assembly. CL effect is large enough to affect perspective-taking such as seen in low load condition, speakers responded as a function of addressee's types of feedback but not under high load. This research thus contributes to the theories of communication that accommodate both cognitive and social influences on message production.

F-15_Rey, G. D., & Buchwald, F. (2011). The expertise reversal effect: Cognitive load and motivational explanations. *Journal of Experimental Psychology: Applied, 17*(1), 33–48.

CLT is based on assumption that human cognitive architecture consists of both long-term memory and working memory, it attached particularly to both schema and automation. Schema is a single entity but contain extensive amount of information thus can reduce CL.

Redundancy effect occurs when additional information presented to one and results in learning decrements as compared to less information. Someone with high prior knowledge maybe able to understand without additional information, add information based on own schema, and draw inferences. Contrastingly, if learners with high prior knowledge received additional information which is redundant, cognitive conflict between own schema and text explanation for example may arise and unnecessarily wander may happen, and interrupt with ongoing processes of information coherence, spend time in unproductive searchers. In other words, this results in high extraneous CL and lower learning performance.

Expertise reversal effect is resulted from presenting additional material that may be beneficial for novices but at the same time harmful for expert in terms of learning outcomes. The expertise reversal effects are not fix as it is, instead its relative effect is moderated by learner's expertise.

Presenting additional information will increase motivation for novices but reduce motivation for experts which resulted in expertise reversal effect. Motivational and CL explanations overlap in which learners who are highly motivated invest more mental effort, which is an aspect of CL which refers to cognitive capacity to accommodate demands of tasks and lead to higher learning performance. Only motivated learners will use available cognitive capacity for additional strategy or cognitive processing, thus is regarded as necessary requirement for adopting germane CL which lead to enhance performance.

The present study aimed to test motivational and cognitive load explanations for the expertise reversal effect. CL was measured with the National Aeronautics and Space Administration Task Load Index (NASA-TLX) and modified scale by Paas. It was found that novices received additional information had better learning performance but the opposite was true for experts. CL differences may explain expertise reversal effect in regards to redundancy effect whereby novices receiving additional information demonstrated lower levels of CL because they depended on onscreen text as guidance and unable to incorporate the information presented in animation into their schemata because of the lack of prior knowledge. Additional information was thus essential or their learning processes, resulting in lower extraneous CL. Expertise reversal effect can be explained by differences in perceptual loads too. Perceptual load is the load of one's perceptual system. Experts' perceptual load of the animation may be relatively low since they were equipped with prior knowledge, thus spare perceptual capacity that is not used for animation is automatically allocated to the processing of the additional written text explanation leading to redundancy effects.

F-16. van Knippenberg, A., Dijksterhuis, A., & Vermeulen, D. (1999). Judgement and memory of a criminal act: The effects of stereotypes and cognitive load. *European Journal of Social Psychology, 29*, 191–201.

Literature suggests that guilt judgments tend to be stereotypically biased and CL has been shown to moderate stereotype effects i.e. judgements are sensitive to stereotypical effects under high CL condition while under low CL condition, one would pay more attention to non-stereotypical information.

The present experiment looked at how judgements are made under high and low CL conditions together with induced positive or negative stereotypical information. Bank employee was used as representing positive social category while hard drug addict was used as representing negative social category. Participants will received information of the supposedly crime case involving either a bank employee or drug addict and the information were presented either under low (read at own pace) or high CL condition (pre-fixed presentation of information). Results showed that under low CL, effect of induced stereotypes were not significant while guilt judgement was higher under high CL with induced negative stereotypes. Load also evoked harsher sentences under negative stereotypes but no effects under positive stereotypes. Participants also recalled more incriminating than exonerating evidences and this was more pronounced under a negative stereotype conditions.

All in all, under high CL conditions, negative stereotype induced more guilt judgements, harsher sentences and higher recalling of incriminating evidences but these were generally absent under low CL. Stereotype was used more under high CL or when judgement is difficult.

F-17_Gerhardt, H., Biele, G. P., Uhlig, H., & Heekeren, H. R. (2011). Cognitive load increases risk aversion. Retrieved from http://lehre.wiwi.hu-berlin.de/Professuren/vwl/wipo/team/holger-gerhardt/Cognitive_load_increases_risk_aversion.pdf/view

Introduction:
-"risk as feelings" hypothesis suggested that cognitive and emotional processes both affected by separate systems in human brain and contribute to decision making under risk by evaluating the options differently. "Emotional processes" usually direct decisions towards risk avoidance while "cognitive processes" usually diminish risk aversion but not under CL

as evidenced in previous study (Benjamin, Brown, and Shapiro, 2006).

-"multiple-process approach" indicates that decision-making in general are the outcome of at least two, separate but interacting processes which evaluate possible options available: (1) emotional processes could be disrupted by lesions and leads to caution in the face of risk while cognitive processes adheres to risk neutrality instead. (2) emotional process quickly guides decision in the risk-aversion while cognitive process can overrule this tendency gradually. (3) people with high cognitive abilities are generally less risk averse (4) the hypothesis that high CL leads to more present-focused choices have been tested explicitly but inconclusive. (5) risk-taking tendency increased in adolescence and is said through the interaction of "Cognitive control system" and "socio-emotional system", whereby it could be that emotional system produces impulsive responses, be it risk-seeking or risk-averse while cognitive control system inhibit on the impulsive responses (6) risk attitudes is influenced through the use of "higher-order cognitive processes" and by increased CL.

The present study:
Participants were presented with choices between different lotteries and in one of the condition, they were asked to performed additional task to manipulate CL. They received remuneration for their choice based on randomly selected trial and also received reward for correctly completed additional task. It was observed that participants did not focus exclusively on the working-memory tasks but also paid attention to lottery choice tasks and as hypothesized, under high CL, frequency for riskier lottery to be chosen was lower.
-This study was the first to show within-subject that CL increases risk-aversion behaviour and they switched more often from riskier to less risky lottery when CL was increased. Also, under CL, response time was faster and within-condition, responses time was also faster when choosing less risky lottery. Thus CL did induced change in risk preferences.

F-18_Sherman, J. W., & Frost, L. A. (2000). On the encoding of stereotype-relevant information under cognitive load. ***Personality and Social Psychology Bulletin, 26,*** **26–34. Doi:10.1177/0146167200261003**

Literature has shown that individuals tend to rely on stereotypes when processing capacity is low as stereotypes may preserves resources that can be used at other processing goals and facilitate the encoding of consistent information in memory. This occurs because first the information is consistent with an existing expectancy thus is easily encoded into memory and secondly is when resources are low, there's this motivational and efficiency-related concerns which lead individual to focus on consistent information. However there are theoretical reasons to expect the opposite. Under limited resources capacity, schemata facilitate the encoding of consistent information and perceivers need not expend resources encoding because they can be extracted so easily; attention thus shift to encode inconsistent information, they are thoroughly encoded and represented in this case. Factors that are said to make processing more difficult such as stimulus exposure time and number of stimuli presented increased the recognition sensitivity for inconsistent information thus is encoded and scored more accurately.

Present study intended to compare the influence of processing capacity on recall and recognition memory. 109 students were recruited and were assigned to either free recall or recognition condition. They were given reading material on a person whom told to be either a priest or skinhead and were presented 30 consistent/non-consistent behaviours. Participants were given a cognitive load task to create a low-processing-capacity condition.

Results showed that recall was higher for inconsistent information under high-processing condition while recall was higher for consistent information under low processing condition. Influence of CL on encoding for consistent and non-consistent information could be influenced by the evaluation of the information presented i.e. recall for consistent information is higher under low processing condition was stronger when the consistent information were kind behaviours. Recognition accuracy was higher in high capacity condition, and inconsistent items were recognized more accurately in low processing condition. Free recall advantage for consistent information is due to inherent retrieval advantages for expected and to expectancy-based search strategies that favour the retrieval of consistent information.

Some researchers argued that recall advantage for consistent information and recognition advantage for inconsistent information reflected a filter-like model that favors encoding and representation of consistent information under low processing condition. This is because perceivers are unable to thoroughly encode inconsistent events when capacity is limited; those events are simply "tagged" in memory (superficial process) instead. Inconsistent information is better recalled under normal processing conditions because they violate expectancies, people often seek to explain them and form associative links, thus they have retrieval advantage. When processing capacity is low, no excess resources to attribute inconsistent information thus retrieval advantage for expectancy consistent information takes place. Recognition does not rely much on associative links and does not depend so much on retrieval process, thus the extent to which they accurately recognize consistent/non-consistent information depend on the encoding process which allows them to distinguish the information, and in the present study, features of inconsistent information are encoded more thoroughly.

F-19_Nagamatsu, L. S., Handy, T. C., Liu-Ambrose, T.Y.L., Voss, M., Neider, M. B., Gaspar, J. G., & Kramer, A. F. (2011). Increased cognitive load leads to impaired mobility decisions in seniors at risk for falls. *Psychology and Aging, 26(2),* 253–259.

This paper looked at how cognitive load affects one's mobility judgments among the senior citizen, using virtual reality environment (VRE). Executive functions/ higher order cognitive processes involves ability to concentrate, attend selectively, to plan and strategize, which are important for decision-making process. In this paper, it is discussed specifically in the condition to make timely decisions for safe mobility among the elderly. Results showed that increased CL that reduced executive functioning leads to impaired divided attention and ineffective use of resources thus resulting in reduced fait speed. Secondly, it was observed that elderly who are "at risk" for falls may have reduced ability to plan and decide on safe mobility under CL condition. This leads to further discussion that under CL condition which caused reduced judgments, two behaviours may be appear (1) risky behaviour (2) conservative behaviour. In a previous study with young adults, it was found that when under high CL, they preferred more cautious behaviours/actions as opposed to the seniors' decisions in the present study.

G-1_Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review, 108,* 291–310.

The few basic thought processes are categorization, learning, inductive, and deductive inference while casual reasoning are same across everyone.

Ancient Greek and Chinese Society:
-holistic thought involves "an orientation to the context or field as a whole, including attention to relationships between a focal object and the field, and a preference for explaining and predicting events on the basis of such relationships. It relies on experience-based knowledge rather than on abstract logic and are dialectical, meaning that there is an emphasis on change, a recognition of contradiction and the need for multiple perspectives, and a search for the "middle Way" between opposing propositions"

-Analytic thought involves "detachment of the object from its context. A tendency to focus on attributes of the object to assign it to categories, and a preference for using rules about the categories to explain and predict the object's behaviour. Inferences rest in part on the practice of decontextualizing structure from content, the use of formal logic, and avoidance of contradiction"

-distinction between holistic and analytic thought based on theory about reasoning:

Holistic Thought	Analytic Thought
-Associative	-Recruits symbolic representational systems
-Reflect similarity and contiguity	-Reflect rule structure

-distinction between holistic and analytic thought based cognitive realm:

Holistic Thought	Analytic Thought
-Field dependence	-Field Independence

-differences between Chinese and Greek

Continuity	Discreteness
Field	Object
Relationships and Similarities	Categories and Rules
Dialectics (reconciling, transcending, accepting apparent contradictions)	Foundational Principles and Logic
Experience-based knowledge	Abstract Analysis

Sociocognitive Systems:
-One who lives in a complex social systems focus attention towards the social field and understand relations between objects and contexts.

-One who lives in a less social relations and role constraints contexts, attention will be focus on the object and one's goals in relation to the object. One is likely to use object's properties to develop categories and rules in governing their behaviours.

-there are few predictions that can be made regarding cognitive differences:

Attention	
-attend to field	-attend to salient target object

Control	-perceived more control and benefit more from given control
Explanation -explanation related to situation factors more frequently	-explanations related to objects and its properties
Prediction & Postdiction -consider many relevant factors to predict outcomes -hindsight bias	
Relationship and similarities vs. Rules and categories -emphasize relationships	-group objects based on categories
Logic vs. Experiential knowledge -rely on prior beliefs and experiential knowledge -influenced by prior beliefs	
Dialectics vs. Law of contradiction -seek compromise, argue based on holism and continuity, reconcile	-reject propositions that are contradicting

-Witkin and Berry (1967, 1976, 1975) claimed that stronger social networks facilitated more holistic orientation
-one's differences in social orientation within a culture are related to field dependence

G-2_Knight, N., & Nisbett, R. E. (2007). Culture, class and cognition: Evidence from Italy. *Journal of Cognition and Culture, 7*, 283–291.

It was expected that there will be some differences between a nation's subcultures. A study was conducted to examine sub-cultural differences in social practices. The task consisted of a list of 20 items, each with 3 words (Panda, Monkey, Banana). 268 high school students were recruited. It was shown that different social practices can affect one's cognitive aspects even among subcultures that share common language. Southern Italian preferred thematic categorization thus shifted towards Asians. SES may also affect one's cognitive thinking but there is a complex relationship between region and SES. It was found that Southern Italian resembles Asian while Northern Italians resembles Westerners with social structures and independence.

G-3_Lin, M-H. (2009). Analytic-holistic thinking influence on information use during sensemaking. *Sunway Academic Journal, 6*, 17–32.

Previous researches have shown that Westerners displayed analytic thought by focusing on attributes of objects, use rules to explain or predict behaviours while East Asians displayed holistic thinking, by attending to relationships between object and the field, predict event based on relationships. AH reflects cultural differences in terms of attention and attribution. Asians attending to the contextual information and relationships more than Westerners while Westerners have a tendency towards dispositional attribution instead of situational ones to explain and predict behaviours. People with different thinking (A-H) attend to different amount of information that affects attribution consequently.

This study was conducted to examine the relationships between AH and attribution by

having the participants to interpret news and messages from the environment in sensemaking. Participants are American and Malaysian students. Holism Scale (HS) was used to measure holistic thinking tendency. It has 10 items with 7 point Likert-scale.

It was found that Malaysian did displayed higher holistic thinking than American, Malaysians recalled more situational information, no differences in causal attribution between both groups and the claim of specific information lead to certain attribution was not supported. These findings supported the link between I-C and A-H, and people with different AH thinking focus on different information.

Choi, I., Koo, M., & Choi, J. A. (2007). Individual differences in analytic versus holistic thinking. *Personality and Social Psychology Bulletin, 33,* 691–705. Doi:10.1177/0146167206298568

The authors constructed Analysis-Holism Scale (AHS) to measure analytic versus holistic thinking tendency among individuals. In total, 6 studies were conducted.

Study 1:
Study 1 developed a 24-item with four domains through exploratory and confirmatory factor analysis. Four domains were chosen as the constructs for the scale: locus of attention (part vs. whole), causal theory (disposition vs. interactions), perception of change (linear vs. cyclic), attitude toward contradictions (formal logic vs. naïve dialecticism). The scale rating ranged from 1 to 7 and was developed in Korean, with high scores representing holism thinking. 303 students were recruited for exploratory factor analysis, and 24 items were obtained eventually with cronbach alpha 0.74. Confirmatory factor analysis was then conducted because one could argue that "locus of attention" and "causality" are closely connected (three-factor); or two overarching constructs, holism (attention & causality) and dialecticism (perception of change & contradiction) (two-factor). 534 students were recruited and confirmatory factor analysis showed four-factor model shower better fit with the data and original model by Nisbett et al., (2001).

Study 2:
Study 2 aimed to test the convergent and discriminant validity of AHS. AHS was correlated with Attributional Complexity Scale (ACS), Sternberg-Wagner Self-Assessment Inventory on the Global Style (SWSAI), and the Rahim organizational Conflict Inventory-II (ROCI-II) (scales that were supposed to measure thinking style) to test the convergent validity. For discriminant validity, AHS was correlated with Individualism-Collectivism Scale (INDCOL) and Self-Construal Scale (SCS) (scales that measure cultural differences in values and self-construal). 328 students were given a packet of questionnaires consisting all the above. There was significant positive correlation found for convergent validity but no significant correlations found for discriminant validity. This study showed that AHS measures what it was designed to capture but are distinct constructs from those measured by INDCOL and SCS.

Study 3:
Study 3 was conducted to test construct validity using Koreans (N=104) and Americans (N=87) as representative of East Asians and North Americans. Mean score for Koreans (holistic culture) was significantly higher than Americans (analytic culture) as expected. This indicated AHS is valid and 4-factor model is better even for the Americans.

Study 4:
Study 4 aimed to test the AHS for within-culture comparison using students of Oriental medicine in Korea (more holistic) and students of other majors in Korea. Results showed that Oriental medicine students did score significantly higher than other students on AHS and appeared specifically in two subdomains, locus of attention and causality. Both groups did not differ on the other two subdomains, which is not surprising because they were holistic people in general. Most importantly is that AHS showed its ability in discriminating more holistic group in between and within-culture contexts.

Study 5 and 6:
Both studies aimed to test the predictive validity of AHS. Study 5 tested the AHS in predicting domain of categorization, hypothesizing that those who scored higher on AHS would used more family resemblance and used less rules. 92 students were recruited and pretest AHS scores were obtained. Results finally showed AHS was able to predict such that those who are more holistic used more family resemblance strategy in their judgments, thus able to predict individual differences in categorization.

Study 6 was conducted to examine the predictive validity of AHS in one's causal reasoning. It is hypothesized that the holistic people would consider more information than analytic people. Since it was observed in Study 2 that AHS was independent of I-C, thus both AHS and INDCOL were administered to 119 students. Results were as predicted, with AHS predicted more holistic people excluded less items when judging while INDCOL did not have any predictive power.

A point to note in this paper is concern with the less number of reverse-scored items. AHS consists 18 forward-scored items and 6 reverse-scored items. It is argued that if holistic people (Koreans) generally have stronger acquiescence bias than analytic (Americans) people, then it implies that AHS may not be valid in Study 3 and 4 as it could simply because holistic people tend to agree with any item. However, the authors claimed that AHS still displays predictive validity.

H-1_Culhane, S. E., Morera, O. F., & Watson, P. J. (2006). The assessment of factorial invariance in need for cognition using Hispanic and Anglo samples. *The Journal of Psychology, 140*, 53–67.

This study examined the Need for Cognition Scale-Short form (NCS-SF) among Hispanic and Anglo samples. NCS-SF is an 18-item instrument, measuring one's tendency to engage in and enjoy thinking, generate more thoughts and elaborated well in presentation. 367 Anglo samples and 241 Hispanic samples were included in the study. This measurement was only partially measurement invariant as 2 of the factor coefficient and at least one intercept differed across groups, did not allow for comparison of the latent means. It was concluded that NCS-SF scores do not differ across both groups or it is partially measurement invariant across both samples. It was expected that there will be some differences between a nation's subcultures.

H-2_Njus, d., & Johnson, D. R. (2008). Need for cognition as a predictor of psychological identity development. *The Journal of Psychology, 142*, 645–655.

NFC is desire to engage in effortful thinking and relevant to the process of resolving adolescent identity crisis. NFC individuals "naturally tend to seek, acquire, think about, and reflect back on information to make sense of stimuli, relationships, and events in the world", have :active, exploring minds" while low NFC individuals prefer not to engage in effortful thought and rely on less effortful cues such as advice from others.

In the process of achieving identity, a search of roles and possible selves is needed and NFC facilitates this search process. NFC can derive from past experience, memories and histories.

NFC is related to socio-cognitive aspects such that it NFC positively related to information-orientation cognitive style, seeking, elaborating on, using relevant information to decide, whereas it negatively related to diffuse-avoidant cognitive style, which is reluctance to face up problems.

The present study had 105 usable data from freshmen and 87 for longitudinal analyses. It was found that people with high NFC achieved higher identity development and had more sophisticated levels of identity development. Changes in NFC positively related to EPSI and negatively related to ego-identity score changes and diffusion score changes. This study showed positive linkage between NFC and psychosocial identity development but should be viewed as not conclusive.

H-3_Park, H. S., Baker, C., & Lee, D. W. (2008). Need for cognition, task complexity, and job satisfaction. *Journal of Management in Engineering,* 111–117.

This paper discussed mainly on the need for cognition, task complexity and job satisfaction within the engineering industry.

Cacioppo and Petty (1982) defined NFC as tendency of individual to enjoy effortful cognitive tasks and engage in cognitively complex activities. This concept is process oriented. People with high NFC seek, think about and reflect on information to make sense of the world while people with low NFC have less tendency to engage and enjoy effortful thinking. Earlier researches have shown that NFC is related to curiosity, desire to maximise information, elaborate information during presentation, focus attention during a task, and intrinsically motivated.

It was shown that teams feel and take on own moods and each others', reproduce brain activities of cognitive function through close and repeatedly interactions. Within an

organization, there are team mental models which reflect on internalized perceptions and beliefs, and problem solving. This indicates that team process certain amount of NFC which allows the team to enjoy engaging in certain types of tasks and have predictive value.

This study found that workers with high NFC and high task complexity seemed to be more satisfied with their jobs indicating that there should be a good match between one's NFC with the jobs' requirements. However this is so far applicable to the engineering industry. Secondly, surprisingly, those who were in a team with high NFC enjoyed their jobs regardless of the task complexity. A good task outcomes stem from a good person-team fit, meaning that one with high NFC who works on high complexity task will be more comfortable working in a team with high NFC as well. One's NFC may be the factor that motivates one to enjoy the task and working in a team setting.

H-4_Bye, D., & Pushkar, D. (2009). How need for cognition and perceived control are differentially linked to emotional outcomes in the transition to retirement. *Motivation and Emotion, 33*, 320–332.

According to Cacioppo and colleagues (1996), NFC is related to trait curiosity, openness to ideas, intrinsic motivation, objectivism, and judge based on empirical information and consideration. Those who are high in NFC are usually independent and see themselves as standard for behaviour. Openness has been defined as a desire to explore, independent-mindedness and derive pleasure from complexity in experiences. For those who have high NFC, conventionality of conscientiousness offset low conformity and risk taking behaviours (openness), creating a balance.

This study was conducted with 385 retired adults and included NFC and perceived control to examine if these two variables lead to positive affect following the similar pathways. It was found that NFC and positive affect is mediated by frequency of cognitive activity and problem-focused coping and the direct path from NFC to positive affect was actually weak. This means that NFC produces positive affect through individual's behavioural choices (cognitive activity and coping). Conscientiousness and openness and education correlated to NFC while neuroticism did not correlate with NFC.

NFC that leads to positive affect through cognitive activity and coping highlights its value. This is consistent with previous findings that those who are high in NFC show different organizing, structuring or problem-solving than those who are low in NFC.

H-5_Steinhart, Y., & Wyer, R. S. (2009). Motivational correlates of need for cognition. *European Journal of Social Psychology, 39*, 608–621.

NFC is a measure of motivation to engage in cognitive activity and determine the impact of information attitude and behaviour. It also reflects intrinsic desire to engage in challenging cognitive activity. One who is high in NFC engage in effortful cognitive activity and this may involves both avoidance-focus and success-focus mindset.

Three experiments have been conducted and found that generally high NFC individuals had greater approach motivation and disposition to avoid negative consequences. It was observed that perceiving a task to be difficult to achieve increased their motivation to avoid negative consequences especially among the high NFC people. People with high NFC simply enjoy engaging in challenging intellectual activity and are motivated intrinsically and extrinsically as well. The opposite is true for those with low NFC. NFC not only influences cognitive activity that involves intellectual achievement, it also involves activity like solving challenging puzzles, and researching and comparing alternatives in making a decision.

NFC may also influences events through 2 stages of processing with NFC fist govern the type of activity that one will choose then once decision is made, anticipation of actually

engaging the task may elicits other intentions or actions.

H-6_Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology, 42*, 116–131.

Four studies have been conducted to develop NFC measure, to confirm the factor analysis findings, and to assess the individual differences in NFC when dealing with cognitive activity. The measurement consisted of 45 items, administered to different group of individuals (assembly and faculty line workers, students). Results showed that internal consistency of this scale was met, and only one major factor was found in both within and between groups showing the stable factor structure. The scale has strong validity as well. Predictive validity is observed in Study 4 when those in high NFC group enjoyed the complex task more while those from low NFC group enjoyed simple task more and those with high NFC were less frustrated when performing the task.

H-7_Cacioppo, J. T., Petty, R. E., & Chuan, F. K. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment, 48*, 3–4.

The need for cognition scale (NCS) was revised in the present study. 18 items were retained for the NCS short form. Both the original and short form NCS were administered to 527 university students. Despite both forms correlated strongly, NCS short form does appear more efficient than the original NCS (34 items).

- Examples of NCS short form available

H-8_Thompson, E. P., Chaiken, S., & Hazlewood, J. D. (1993). Need for cognition and desire for control as moderators of extrinsic reward effects: A person X situation approach to the study of intrinsic motivation. *Journal of Personality and Social Psychology, 64*, 987–999.

Two individual-differences that are related to intrinsic motivation processes are being investigated: NFC and Desire for control (DC).

NFC was originally conceptualised by Arthur Cohen and colleagues (1955, 1957), indicating "need to understand and make reasonable the experiential world" and this need leads to "tensions and deprivation" that prompt "active efforts to structure the situation and increase understanding". Those with high NFC rely on heuristic cues, argument quality, recall more argument contents, process inconsistent information thoroughly, and resist primacy effects on impression formation.

DC Scale as designed by Burger and Cooper (1979) was used to measure "motive to control events in one's life". High DC people being less conform to perceived norm, vulnerable to learned helplessness, react negatively to statements as opposed to preferred attitude, and processed attributional information more.

NFC and DC reflects personality variables that may moderate responses to undermining factors. NFC determines one's initial task interest (tasks that requires effortful cognitive activities) which predict persistence while DC moderates extrinsic motivation by perceiving task contingent rewards as threatening to one's personal autonomy.

This study examined the moderator effects of NFC and DC on extrinsic rewards which affect intrinsic motivation for an effortful cognitive activities task. 20 male and 54 female university students were included in the study. Both NFC and DC related to intrinsic

motivation with only DC moderated intrinsic motivation that was undermined by extrinsic rewards while NFC predicted intrinsic motivation better when extrinsic rewards are absent. NFC may involve intrinsic motivation but its ability to account for the undermining is due to its relation with DC, but become functionally independent of control motivation over time.

H-9_Shestowsky, D., Wegner, D. T., & Fabrigar, L. R. (1998). Need for cognition and interpersonal influence: Individual differences in impact on dyadic decisions. *Journal of Personality and Social Psychology, 74,* 1317–1328.

Cacioppo & Petty (1982) defined NC as "the intrinsic motivation for, and enjoyment of, effortful cognitive activities". Research efforts have been very much driven by the elaboration likelihood model (ELM), in which NC is conceptualised as "individual difference in the motivation to scrutinize the central merits of attitude objects and positions".

NC: Individual differences in motivation to engage in cognitive tasks

NC is said to represent the individual differences in their intrinsic enjoyment of effortful thinking. Those who are high in NC are more attentive, recall more information, less responsive to physical attractiveness of message than those who are low in NC.

ELM aims to address how different factors relate to (a) persistence of attitude over time (b) resistance of attitudes in counterattitudinal communications (c) impact of attitudes on future behaviour. Resistance of NC is not due to passive dismissal of counterattitudinal information but active scrutiny of people with high NC.

NC and Interpersonal Decision Making

People with high NC tend to have high prediscussion attitudes which indicate higher influence in the group. Attitudes are related to decisions making in a way that those with strong attitudes resist counterpersuasion better than those with low NC, they are less likely to be influences by opponents' arguments. Secondly, those that have strong attitudes based on extensive scrutiny of information which make them more persuasive comparatively. These psychological mechanisms mentioned above are not mutually exclusive.

The present study:

This study examined the individual differences (NC) on the collective/group decision making tasks. 74 undergraduates participated in the study, in which a context of mock-trial jury deliberations. The 18-item NC scale was used.

Results showed that when a group of individuals of high- and low-NC, the decisions are usually closely to the opinions of the high-NC members or greater change in opinion of the low-NC individuals. High-NC people were more influential because they are more active and effective to defend one's view. It is also advised to identify who have higher NC (prediscussion opinions to predict decisions) in a group who will mostly determine the group's decision.

There are differences between the hypothetical contexts in the current study with real-life jury deliberations. In past researches, education and occupation both had been found to correlate with NC which further indicates that it is possible that those with higher education and certain occupational categories are more careful in scrutinizing information.

H-10_Coutinho, S. A., & Woolery, L. M. (2004). The need for cognition and life satisfaction among college students. *College Student Journal, 38,* 203–206.

Cohen, Stotland, and Wolfe (1955) defined NC as "need to understand and make reasonable the experimental world" while Cacioppo and Petty (1982) defined NC as

"tendency to engage in and enjoy effortful cognitive activity". Those who have high NC are motivated to think, and enjoy complex cognitive task. Cacioppo and Petty developed 34-item NCS and further reduced to 18 items by Cacioppo, Petty and Kao (1984) to ease administration. Previous studies have also shown NC to be positively related to academic performance, process information more effectively while studying have been shown to raise students' life satisfaction. 18-item NCS and 5-item SWLS were administered to 157 undergraduate to examine the relationship between NC and life satisfaction. It was found that students that have high NC are more satisfied with their life than those with low NC. However this study was limited in terms of demographic locations, relatively young participants, and student's major fields of study were unknown.

I-1_Lyons, J. B., Swindler, S. D., & Offner, A. (2009). The impact of leadership on change readiness in the US military. *Journal of Change Management, 9*, 459–475.

This paper discussed on change leadership as it pertains to an organizational change context, examine change readiness construct and how it applies to the US military. Change leadership refers to leadership that support organization change initiatives (Herold et al., 2008) and include behaviours such as visioning, sense of urgency around the change and support the change (Kotter 1996). Change readiness is a "comprehensive attitude that is influenced simultaneously by the content, the process, and the individuals". Individuals usually go through stages of change which begin with psychological acceptance and later behavioural intentions.

Transtheoretical Model of behaviour change (TTM) proposes that one's adaptive behaviour in change can be predicted based on 5 stages: precontemplation, contemplation, preparation, action and maintenance.

This study included 395 respondents from the US Air Force organization. It was found that change leadership and general leadership are both unique predictors of change readiness among military and it was senior leaders but not immediate supervisor's change leadership that are predictive. Senior leaders set stage for change initiative, make decisions on resources and allocation and create urgency and support change.

I-2_Boland, R. (2008). Army uses advanced systems to understand what soldiers know. Retrieved from http://www.afcea.org/signal/articles/templates/Signal_Article_Template.asp?articleid=1528&zoneid=228

The US Army's augmented cognition program is carrying on work began at the Defense Advanced Research Projects Agency (DARPA) and was initially intended to demonstrate capabilities for Future Force Warrior (FFW). Augmented cognition is a separate program integrated into the FFW to show new capabilities integrated into Future Force combat systems.

The augmented cognition work helps commanders to understand their team leaders' loads better so that when leaders are overloaded, information can be delivered to a second in command instead. Soldiers were hooked up to EEG and ECG to monitor them physiologically.

A few of the possible application of augmented cognition are to allow crew to pay attention to combat operation while the vehicle (tank) drives or performs functions by itself and this is a good way to examine cognitive load while another application is concerning the detection of improvised explosive device (IED), whereby officer is interested to explore the soldiers' real-time cognitive status at the time they detect the device and when the brain recognizing the threat.

I-3_Hill, M., & Salt, J. (2010). Life and death decisions using sparse, unreliable evidence. European Conference on Information Management and Evaluation (ECIME) 2010 proceedings. Retrieved from http://www.martinhill.me.uk/pubs/LifeAndDeathWithSparseUnreliable.pdf

Military headquarters officers tend to stay and be sheltered in office-like environment while junior military commanders are face with challenges to cope and remember extensive

briefing, radio messages, background contexts and regulations, verbal shouts and heavily constrained senses to aware of local situation. This paper aimed to describe some of the systems and effective ways to model them on the ground.

The typical tasks of soldiers are to arrest, destroy, drive off or persuade acceptability of local population or to build civilian support and peacekeeping. Junior soldiers are usually focused on the immediate ground around them which also termed the situation awareness while the higher officer commanders are concerned with the wider picture which includes grid references, friendly or enemy positions, areas of responsibility and shared reference point and conditions of his men.

Cognitive load is referred to the ability of commander to absorb new relevant information and make sensible decisions. Usually during war, there are stresses from immediate emotional response, and the pressure to remove threat quickly as possible and these pressures may reduce the ability of one to assess and understand the new information effectively. Thus realistic training is provided to help commanded learn and practise what he needs to focus on and what can be deferred or delegated at times of war. Practices lead to automatic (drills) and thus reduce CL of both manual tasks and collaboration tasks.

I-4_Russo, M., Sing, H., Kendall, A., Johnson, D., Santiago, S., Escolas, S… Thomas, M. (2005). Visual perception, flight performance, and reaction time impairments in military pilots during 26 hours of continuous wake: Implications for Automated workload control systems as fatigue management tools. In *Strategies to Maintain Combat Readiness during Extended Deployments – A human Systems Approach* (27-1 – 27-16). Meeting Proceedings RTO-MP-HFM-124, Paper 27.

To monitor real-time cognitive performance capacity, neurophysiologic signals are integrated with prediction models to assess decision –making and other operationally-relevant mental processes. This paper aimed to describe relationships among visual information processing impairments and operational performance that occur in sleep deprivation and in high workload condition in order to integrate visual indices into future automated workload reduction systems.

Visual neglect happens when visual stimuli are not fully or correctly processed by parietal lobes, not forwarded or processed by thalamic relays or not forwarded to or attended to by the prefrontal regions. It was found that visual impairment correlated with operational performance failure, with declines in recognition of visual stimuli and lapses and errors of commission starting from 20 hours of continuous wake.

Previous investigations also showed that aircrews experienced loss of situation awareness, channelized attention and spatial disorientation as a result of fatigueness from days or sleep interruption as a critical over-aching enabler. Fatigue not only affect ability to process and integrate wide variety of stimuli but increases the chance that reductions in situation awareness will occur. Thus these lead to the present study of using visual perception task to assess visual neglect due to sleep deprivation under high CL condition.

This study used a simulated overnight aerial refuelling flight to assess visual perception and motor performance in US Air Force pilots following a day of continuous wake. A choice visual perception task (CVPT) was integrated into the US Air Force C-141 simulator cockpit to assess possible impairments in high CL condition. Results showed that visual perception

impairment and complex motor performance correlated strongly. During complex maneuver, pilot usually remain silent in order to conserve and focus cognitive resources on the demanding flight task. As fatigue increases, the odds of having problems with spatial disorientation and of improperly handling visual illusions may increase. Fatigue affects situation awareness levels in general because one critical component of situation awareness is the ability to project current aircraft states into the near future. Visual impairments under sleep deprivation were observed only in some of the pilots and it was speculated that some were so over-trained that they used less cognitive attentional resources to accomplish the same task even when fatigue.